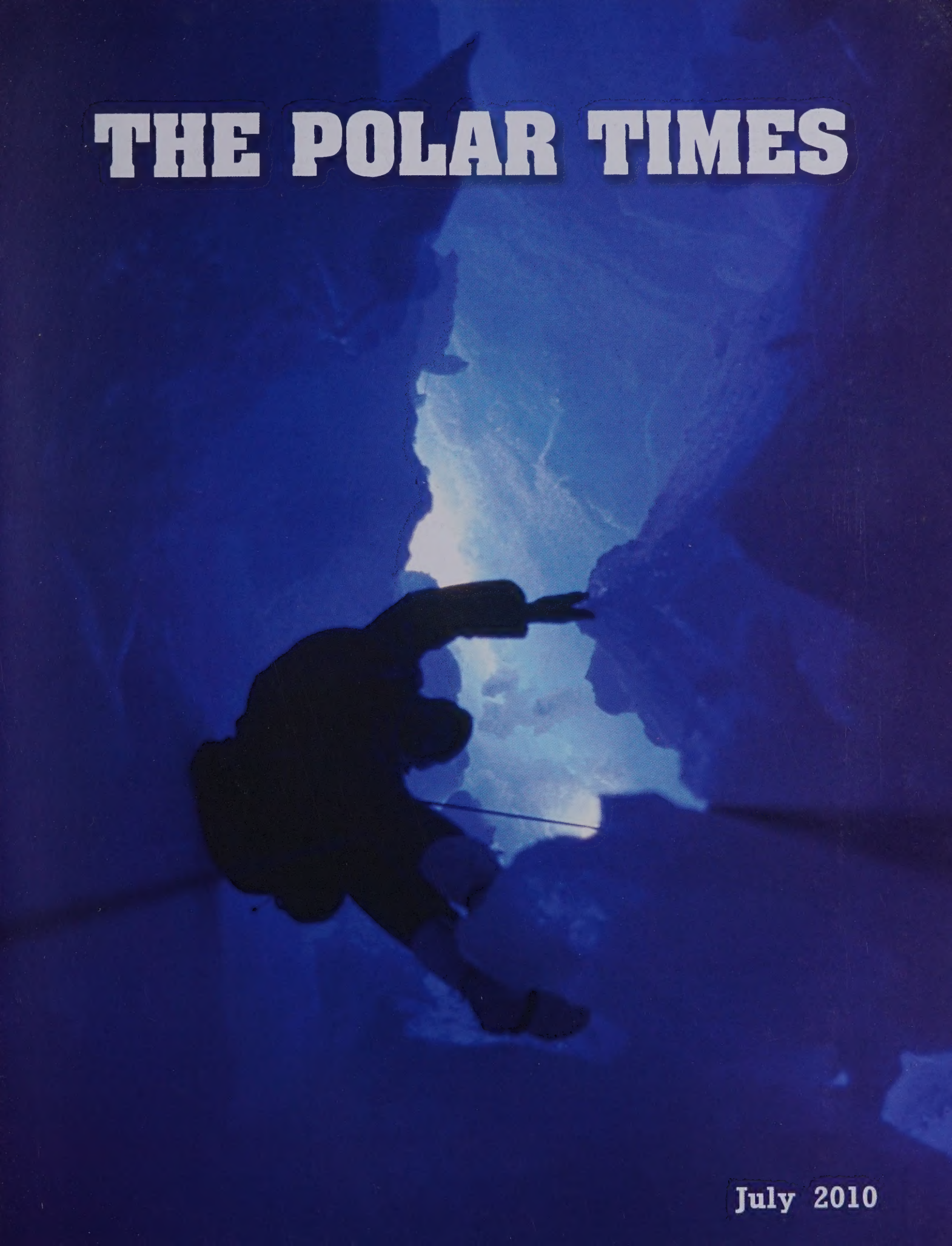
THE POLAR TIMES



July 2010

President's Letter

Outstanding talks were many and varied at the American Polar Society Meeting in Boulder, May 12-14. These covered a range of Arctic and Antarctic subjects, spanning both history and science, humorous reminiscence and cutting-edge research. Several significant papers related to climate change (as manifest by global warming). The fact that these changes are amplified in high-latitudes stresses the importance of working in these regions for a global understanding of the changing environment. Mark Serreze, Director of the National Snow and Ice Data Center, discussed the observation that Arctic sea ice extent at the end of the summer melt season has declined sharply over the period of satellite observations and is projected to disappear entirely as concentrations of atmospheric greenhouse gases continue to rise. He noted that "less attention has been paid to the environmental impacts of current and future sea ice loss. Ice loss is already resulting in strong rises in atmospheric temperature during autumn, not just at and near the surface, but extending through a considerable depth of the atmosphere. Through atmospheric transports, this strong warming, known as Arctic amplification, is starting to extend well beyond areas of ice loss, and will eventually influence Arctic land areas, glaciers, ice caps and the Greenland ice sheet. Through altering horizontal temperature gradients, continued loss of the ice cover is in turn likely to impact on patterns of atmospheric circulation and precipitation not just within the Arctic, but into middle latitudes. One example described by Irina Overeem of the Institute of Arctic and Alpine Research (INSTAAR) was the dramatic increase in Alaskan Arctic coastal retreat; at Drew point along the Beaufort Sea, this averaged 14m/yr and a maximum of 25 m/yr with consequent damage to coastal villages and producing petroleum platforms. Near one well 100 m of land was lost in a single season (2004). Leonid Polyak of Ohio State University and colleagues (Quat. Sci. Rev.; in press) conclude that Arctic sea ice loss of the past decade seems to be unprecedented in comparison with the variability observed over past millennial time-scales.

Mark Meier, also of INSTAAR, pointed out in his talk that most of the sea level increase in the 20th century due to melting of land ice was from the small glaciers and ice caps. The late Mark Dyurgerov, also of INSTAAR, described this melting and was researching these ~400,000 small glaciers at the time of his recent death. He further noted the potential sea level contributions of these many small glaciers and icecaps in Antarctic coastal areas. In the coming century, the great ice sheets on Greenland and Antarctica may surpass these smaller ice masses in annual mass loss to the sea; but for the foreseeable future (the next few decades), the cumulative effects of small ice masses will have had the biggest effect on our oceans, and they deserve detailed study.

The National Oceanographic and Atmospheric Administration (NOAA) recently reported that:

- The combined global land and ocean average surface temperature for April 2010 was the warmest on record at 14.5°C (58.1°F), which is 0.76°C (1.37°F) above the 20th century average of 13.7°C (56.7°F). This was also the 34th consecutive April with global land and ocean temperatures above the 20th century average.
- The worldwide ocean surface temperature was 0.57°C (1.03°F) above the 20th century average of 16.0°C (60.9°F) and the warmest April on record. The warmth was most pronounced in the equatorial portions of the major oceans, especially the Atlantic.
- The April worldwide land surface temperature was 1.29°C (2.32°F) above the 20th century average of 8.1°C (46.5°F), the third warmest on record.
- For the year to date, the global combined land and ocean surface temperature of 13.3°C (56.0°F) was the warmest January-April period. This value is 0.69°C (1.24°F) above the 20th century average.

So, despite the impression of some folks along the US Atlantic seaboard that the past winter disproved global warming, for the globe as a whole it was the warmest on record. These observations should be of particular interest to the polar community as exemplified by the American Polar Society. Global warming is continuing. It should be an interesting future! ❑

John C. Behrendt

President, APS

Secretary's Letter

It is time for all of us to vote on who will succeed John Behrendt in the role of President of APS. John has done a great job the last three-plus years, well exceeding the two-year term set out in the constitution. Many thanks, and we hope he doesn't miss the position too much.

The next President has a full plate ahead of him. The current rate of production costs for *The Polar Times* does not match our income, and the APS needs to strategize and determine the best way to continue this wonderful publication. At a minimum, the next President will need to work with the Board of Governors and the members to balance the ledger a bit better. More possibly, we may need to develop new funding streams and think about changes to the publication.

There are two well-qualified candidates up for the post, and we have included a copy of their vitae to help you decide. Also, you will find a ballot card enclosed in this issue of *The Polar Times*, so please mark your choice and return in the included self-addressed envelope to my address no later than August 15, 2010. You may also write-in another candidate of your choice. We will announce the winner in the Winter 2011 copy of *The Polar Times*.

Thank you in advance for your vote and enjoy this issue of PT.

Kevin Bjella

Secretary, APS

About Our Front Cover

Inside the East Antarctic Ice Sheet near Australia's Davis Station, 1987. ❑ **Copyright Jeff Rubin**

American Polar Society

The American Polar Society was founded Nov. 29, 1934, to band together all persons interested in polar exploration. Regular membership dues are $25 a year ($35, foreign) and entitle members to receive ***The Polar Times*** twice a year. The American Polar Society is classified as a tax exempt organization under Sec 501(C)3 of the IRS Code. For more information about the American Polar Society, contact Kevin L. Bjella, ***APS Secretary***, at 1.802.295.6881 or send email to kevin.bjella@erdc.usace.army.mil.

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Managing Editor: Capt. Cliff Bekkedahl, USN (Ret.)
631.267.7646 • cv1957@optonline.net

Arctic Editors: Herbert Drury • Moki Kokoris
herbdrury1@hotmail.com • moki@cloud9.net

Antarctic Editor: Jeff Rubin
440.774.1373 • rubinwiles@oberlin.net

Contributing Editors
Billy-Ace Penguin Baker, RMC, USN (Ret.)
Peter Anderson
Capt. Brian Shoemaker, USN (Ret.)

Production Editor: Charlotte Sinclaire
919.260.0031 • sinclaireca@gmail.com

Heart and Snow: South Africa's 50 Years in Antarctica

As the South African National Antarctic Programme celebrates a half century of polar science, Tiara Walters joins Africa's Ice Road Truckers on a fuel-pumping adventure

A big guy with a big heart, smiling eyes and a quiet but enduring passion for his itinerant Boer ancestors, 43-year-old Antonie Minnaar from Pretoria, South Africa's administrative capital, had longed to visit Antarctica for many years. He finally did so in 2009 when he was chosen as one of five diesel mechanics from the South African National Defence Force (SANDF) to haul cargo for the country's 50th annual expedition to Dronning Maud Land, East Antarctica.

The *SA Agulhas*, carrying the country's 80-odd expedition personnel, had steamed out of Table Bay in early December and made Antarctic landfall near the Ekström Ice Shelf on December 26. Now, on a mid-January morning, Minnaar and I found ourselves hurtling like outlaws across Antarctica's blanched badlands in an 18-ton Challenger, Johnny Cash crooning in the vehicle's cab.

"Easy now. Easy ... easy ... *hokaai* (stop)!" Minnaar pleaded with me. We were fourth in a train of five Challengers that had left SANAE IV, South Africa's Dronning Maud Land research station on the Vesleskarvet nunatak, at 8 a.m. that morning. Now we were headed for the *SA Agulhas*, which was moored just off the Fimbul Ice Shelf some 178km away, to collect the remaining polar diesel that would sustain the station during the year.

Dubbed the *Ou Vrou*, Afrikaans for "old woman", our hoary 25-year-old Challenger felt like the *SA Agulhas* all over again—only now our ocean was a savage sea of snow and, as I careened the vehicle over a wave of ice, her nose reared into the air and crashed down, scraps of ice scattering like sea spume. A five-ton diesel tank and a three-ton sled hooked up to the Challenger bellowed in tow, jangling our innards like a pair of Folsom Prison keys.

Minutes earlier Minnaar had goaded me into "having a go" at the wheel, but now I wasn't exactly raking in gold stars for woman expeditioners in Antarctica. Since offloading had kicked off in late December, the quintet of Challenger drivers had already accumulated a total of 2500km of driving, made all the more testing by this brutal Eden's frigid mercury, cracking bay ice and swamps of soft powder snow.

Team leader Gerrie Grundling, who had been a regional Defence Force Sports Personality in 2008, Minnaar, Andrew Kietzmann, Essie Esterhuyzen and Coenraad Groenewald might have seemed like regular blokes from Pretoria and Cape Town, but here they were the Ice Road Truckers of the Antarctic.

"Yes, a driver's life is interesting. It is a difficult life. You sit here, and you work your fingers through. You work in the cold a lot, *maar dis vir ons lekker* (but we enjoy it)," the 44-year-old Grundling, a military man who speaks like a cool assassin, told me when we took a breather on the ice. No matter how much the insuperable ice roads hindered his way, Grundling always sounded as if he were reading the forecast for a beach in the Seychelles. "And tomorrow is pay day. Yes. On January 15 the army bar is going to be full."

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PHOTO BY TIARA WALTERS

SA Agulhas *offloading on the 1.8-m-thick pack ice near the Ekström Ice Shelf, with Adélie penguins in the foreground, before the ice cracked and gave way, forcing a search of the Dronning Maud Land coast for safer options*

Tiara Walters, 31, is a freelance environmental writer and photographer based in Cape Town, South Africa. She has contributed to newspapers and magazines throughout the country and has written many cover stories for South Africa's largest newspaper, the Sunday Times. Highlights of her reporting include the country's first detailed feature on the effects of climate change on South Africa's environment, and being the first writer in more than 10 years to track the world's southernmost elephant population, the then presumed-extinct Knysna elephants, and finding compelling evidence, including fresh elephant dung, of their existence. In 2009-10, Tiara became the first South African woman writer to spend a summer in Antarctica.

"Heart and Snow" — Continued from page 3

Photo by Tania Walters

The Challenger MT865, the jewel of SANAP's tracked-vehicle fleet, got stuck in the snow several times on the way from the Fimbul Ice Shelf on the Dronning Maud Land Coast to SANAE IV, the South African research station, 178km inland. Photograph taken 17 January 2010.

Thirteen hours after leaving SANAE IV, we nosed into the South African "bukta"—Norwegian Antarctic-speak for a bay garroted by sea ice. Having laid claim to Dronning Maud Land in 1939, the Norwegians had got here first and had named most landmarks in the area, including all the local "bukten," or bays.

Even though we had pulled the front door shut, the first night in our caboose was hard and bitter and, knowing its foibles, the cruel Antarctic cold curled her sinewy fingers through the caboose's every conceivable crack. The guys had passed out as soon as they had hit their berths and now they were a heaving morass of mummy bags snoring like old broken zips, but I just couldn't s h a k e t h e wearisome, burning throb that had cramped my hands into small baby fists. As you do in the dead hours, I had fallen into delirium and it was only three hours later that I thought of putting on a pair of half-burnt gloves, which I had frazzled while warming my hands over the barbeque earlier.

"You should've taken off your clothes last night," Weather-man Grundling said when we were huddled in the caboose kitchen over morning coffee and *Ouma beskuit* (a popular South African rusk that translates as "Grandma rusks").

"*Wat?*" I spluttered back in Afrikaans.

"*Ernstig* (seriously)," he said, unphased. Deadpan. "Those mummy bags are amazing. They're designed to insulate you with the heat your body radiates. Wear too much, and the mummy bag can't do its job. So that snowsuit of yours helped you *niks*. Nada.

"The only reason we slept in our clothes was because you were there," he quipped and walked off, chortling.

Over the next 48 hours we unloaded 88 drums of jet A1 and skidoo fuel, 28 containers and the remaining 165,000 litres needed to complete SANAE IV's 400,000-litre polar diesel consignment for the year.

When the Challenger train finally trundled out of the South African bukta after three days, we fantasised about the very first things we'd do once the summer takeover team had arrived back in South Africa in a month and a half's time.

"A long and selfish steaming bath," I said. The caboose had been so cramped and cold and the past days so packed none of us had managed to change clothes. Right then I would've thrown myself in front of a Challenger for a hot tub. "One with candles and salts and corny music from the New Age channel."

"Caramel bon bons," offered 28-year-old Marlon Manko, Minnaar's

apprentice driver. "Those little ones with the horns."

"When my wife's dressed up, no one's as beautiful. We'll drop my daughter at my mother's house for a night and go somewhere for a little R&R," Minnaar added.

"Or maybe not, as the case may be," he sniggered.

The journey back to SANAE IV was soon to morph into a vicious, 24-hour melee of snow storms and whiteouts, forcing us to navigate solely from GPS waypoint to waypoint. Our heavy, tank-laden sleds would slow the entire Challenger train down to 10 km/h and some loads would be abandoned 25 km from SANAE IV, only to be collected the next day once the storms had abated.

Photo by Tara Walters

Diesel mechanic Marlon Manko, who is spending 2010 at SANAE IV, rests on a tank sled. The Challengers were beset by whiteouts as they transported fuel from the Fimbul Ice Shelf towards SANAE IV.

After we'd trekked across 356km of ice and Vesleskarvet ghosted into view through the albedo, my thoughts turned to Johann Jamneck, the 25-year-old meteorologist whose memorial service was being held at SANAE IV as we rounded the foot of the nunatak. Jamneck had been killed by a Vesles ice fall while practising crevasse-rescue techniques in October. I didn't know him, but I knew he loved this place.

He wrote poetry about Dronning Maud Land and took photographs of its icescapes; and, after his death, his overwintering team mates hung his photographs over the large dining-room windows, which take in views of the treacherous edge of the Vesles cliff and the plains that sweep to the horizon 200km away. Each photo is a journey into this young naturalist's mind—a red moon above the Ahlmann Ridge; a dusk-coloured dome of winter sky over dark, drifting snow that rolls over the land like stage mist, as alluring and sometimes as fatal as a siren at sea.

Somebody once told me that Antarctica is relentless, but very forgiving too.

"Antarctica, it's the most beautiful thing on Earth," Adriaan Dreyer, the commander of SANAE IV's 80-man expedition, had said on the voyage from Cape Town. "There's nothing—just whiteness; it's nothing but white and yet it's a canvas for colour, for blue ice, for these spectacular rivers of ice."

"When things at SANAE get a little rough, I get on my skidoo and ride into the white fields where you can see 200km into the distance. Then you sit there, for a long time, and you listen to your heart, and the blood pump in your ears. If you've never had the opportunity for real introspection, never had the chance to clear your head, you can do it there.

"And when it's a beautiful day, say -3 or -4, you whip off your kit and tan on the ice."

"What?" I wheezed. "That's like lolling in your home freezer—are you crazy?"

"Probably," Dreyer said and, for the first time since I'd met him some two months before, I saw him laugh so hard his entire *boep* (belly) shook.

Now, as we neared home, I thought of these things, of Terra Incognita's beautiful misery, of the way so many of the veterans of South Africa's Antarctic Expedition had once sworn they'd never return to this place of hardship—only to find themselves back on the *SA Agulhas* the next year, gazing beyond the prow, out across the rippling deep, as if they're about to cross the mythologised horizon of the Antarctic for the first time. ❑

SANAE at a Glance

by Tiara Walters

WHAT: The South African government's scientific research station in Antarctica, SANAE IV (South African National Antarctic Expedition). The South African National Antarctic Programme, or SANAP, oversees SANAE IV, as well as SANAP's year-round sub-Antarctic programmes at Gough and Marion islands.

WHY: The reincarnation of three former SANAES, all swallowed and crushed by ice, SANAE IV was built between 1991 and 1997 at a cost of around 80 million Rand ($18 million). SANAE I had been established some four decades earlier, after Norway had in 1959 donated its disused base to South Africa, one of the 12 original signatories to the Antarctic Treaty.

WHERE: SANAE IV is situated at 71°40'S, 2°51'W in Dronning Maud Land, East Antarctica, on the 250m-high Vesleskarvet nunatak. The station was built just 40m from the nunatak's edge, which enables the easterly wind to funnel snow through the 4m stilts on which the building is anchored into the windscoop at the bottom of the cliff. Unlike the Fimbul glacier on which the former SANAEs were built, the nunatak's billion-year-old rocky surface offers a sure foundation. This far-sighted design, should give SANAE IV a lifespan of at least 30 years.

Leader of the 2009 SANAE IV overwintering team, electronic engineer Lötter Kok (at left) during the tug-of-war at SANAE IV's annual sports day. Pulling at right are (from left to right): mechanical engineer Willie Nel, expedition doctor Joanna Thirsk and space physicist and engineer Keith Browne. Photograph taken 28 January 2010.

WHO: SANAE IV has room for 80 personnel. During the summer, it is a flurry of scientists, engineers, diesel mechanics, helicopter pilots and other support staff. During the winter, the station accommodates a 10-person team of engineers, physicists, diesel mechanics, a medical doctor and a meteorologist.

HOW: A typical expedition lasts 14 months. After a 4,200-km voyage from Cape Town aboard the *SA Agulhas*, South Africa's 32-year-old polar research vessel, the expedition arrives each December at the country's depot on the Ekström Ice Shelf (70°S, 8°W), the most reliable offloading zone in navigable relation to SANAE IV. From here two helicopters fly the 80 personnel to the station, while a team of diesel mechanics from the South African National Defence Force roll up their sleeves to haul the expedition's annual supplies 315km east to the station. The station's 400,000 litre consignment of polar diesel for the year is offloaded on the nearby Fimbul Ice Shelf, where the ice is not stable enough for heavy-duty cargo operations, but can easily sustain the *SA Agulhas*'s fuel hoses, which are simply slung from the ship to the tankers on the shelf. From here it's just a 178km hop to SANAE IV, as opposed to the 315km schlep from the Ekström Ice Shelf. After the requisite base maintenance and science studies—and before the pack ice closes in—the summer team returns to Cape Town in mid-February, taking the old overwintering team back to civilisation and leaving the new one to spend a year in Antarctica.

PHOTO BY TIARA WALTERS

Built between 1991 and 1997 at a cost of around $18 million, South Africa's SANAE IV station accommodates 80 people.

FACILITIES: Commissioned by South Africa's Department of Public Works, engineer Hennie Stassen took great pains to design a high-tech station that would hold up to Dronning Maud Land's weather. SANAE IV consists of three linked, double-story capsules.

Each of these 45m x 15m units has been built to withstand temperatures as low as -55°C and polar winds of up to 280km/h. The station's corners were designed with rounded edges to reduce aerodynamic drag and each of the glass-reinforced plastic wall panels has an insulation capacity 30 times that of a normal 230mm brick wall. Three 180kW diesel generators power the station's 3,286 sq. m of liveable area, which a climate-control system keeps at a constant temperature of 18°C during summer, although the base drops to around 15°C during winter.

The station has two large science labs whose airy windows look out onto the southern peaks of the Ahlmann Ridge; medical facilities equipped for brain surgery; and a radio-control room with a satellite data link that furnishes the entire station with high-tech radio and telephone systems, as well as wireless Internet. An electric snow smelter (or "smelly," as the locals call it) produces daily fresh water and the station's waste is sorted and shipped back to Cape Town for recycling.

SANAE IV's advanced sewerage-treatment facility was the first in Antarctica when the station was unveiled in 1997. It purifies all uretic fluids and pumps clean water devoid of any bacteria and other micro-organisms back into the environment. All solid waste is shipped back to Cape Town where it is dealt with by sewerage-treatment plants. Interestingly, while the station's Gents have six urinals, six loos, 12 basins and four showers, the Ladies have only two loos, two showers and two basins—an instructive indication of a typical expedition's male-to-female ratio.

WORK: SANAE IV's 1.3 sq km grounds are used as an outdoor laboratory for investigating space weather and include the gargantuan SuperDARN radar, whose 17m-high masts are anchored in a dramatic 240m line along the edge of Vesles. The radar is one of 17 in the Super Dual Auroral Radar Network, which has been set up in the high latitudes to study ionospheric conditions that might cause magnetic storms, such as the solar squall that devastated Quebec's power grid in 1989. Invasion biology, geography, geoformatics, seismology, meteorology, space physics and climate-change research are also studied here. Oceanography and additional climate-change research is conducted aboard the *SA Agulhas*.

THE ICE-HOUSE RULES: Working hours are from eight to five, but staff often work much longer each day to make the most of the polar summer's precious, 24-hour daylight. Everyone is expected to help out with base maintenance—"skivvy" duties range from scraping cooking pots to shovelling snow into the smelly.

Weekends are an extinct animal here, although after hours punters of the station's bar, the Sastrugi Inn, enjoy a bit of the old Brandy & Coke and a spot of "langarm" (a jovial folk dance that loosely resembles ballroom and is performed with a "long" or extended arm). When venturing outside, staff must sign out a handheld radio and inform the radio-control room of their movements.

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PHOTO BY TIARA WALTERS

SANAE IV perches just 40m from the edge of the 250m-high Vesleskarvet nunatak in Dronning Maud Land, East Antarctica

Tall Order

It took a team of 16 men less than four weeks to build South Africa's new summer station.

by Tiara Walters

When the 16-man construction crew sent to build South Africa's emergency base in Antarctica sailed out of Table Bay Harbour in December, they expected the voyage to take just 14 days. The harbour was thrumming as usual with its fleet of tugs, workboats, oil tankers, bulk carriers and cruise ships. It was just another halcyon day in the port of Cape Town, the sky an inverted bowl of china blue, the mountain's tablecloth purling down its slopes like dry ice.

By the time the ship nosed out of the harbour, her passengers, who included the 80 members of the South African National Antarctic Programme's 50th expedition, had already heard whispers of B15K, the 60km x 5km iceberg that had wedged itself into our offloading zone on the ice shelf. But on that December afternoon, when the deceitful austral seas of Antarctica seemed such a world away, not even the "ice heads" aboard the ship could predict the extraordinary conditions that would extend the voyage by two weeks.

But, if it wasn't B15K, which threatened to jack knife and crush the *SA Agulhas* as we neared our depot on the Ekström Ice Shelf, then it was the 1.8m pack ice that cracked and gave way as we offloaded our supplies, forcing us to evacuate and scour the Dronning Maud Land coast for safer options elsewhere.

The otherwise unflappable expedition leader, Adriaan Dreyer, described it as the most difficult offloading process he could remember, but perhaps no one was more ill at ease than structural engineer Hennie Stassen, whose firm, Outsite Architecture and Engineering, was to build the new South African emergency base, or E-Base, as it's colloquially known.

If something terrible happened to SANAE IV, South Africa's year-round research station, E-Base would act as a refuge 6km from Germany's Neumayer III station. It would also serve as a summer shelter just 6km from the *SA Agulhas*'s offloading zone on the edge of the Ekström Ice Shelf, a 315km journey from SANAE IV. As the snow petrel flies, SANAE IV is actually just 178km from the edge of the Fimbul Ice Shelf. The Ekström, however, presents the safest route for the annual heavy-duty cargo hauls between the ship and the station.

"A lot was riding on this," Stassen recalled at his Pretoria engineering firm in early May. "It was, in many ways, a SANAP (South African National Antarctic Programme) project commissioned by Germany, who'd asked us to decommission their old station, Neumayer II, which was being crushed by the Ekström shelf and whose materials we'd use to build E-Base nearby."

Photo courtesy Outsite Architecture and Engineering

South Africa's new emergency base (or E-Base, as it's colloquially known) under construction

South Africa had established itself as a force in ice engineering when it had unveiled its current station, SANAE IV, in 1997—at the time, it was Antarctica's most high-tech base. For Germany, which had opened its own station, Neumayer III, in 2009, the South Africans were an obvious choice to dismantle Neumayer II—plus, the Ekström shelf's relative proximity to Table Bay Harbour meant South Africa could do it more cheaply than almost anyone else.

"And we insisted we could," Stassen added, "so failing to meet the brief might've damaged our hard-won friendship with Germany."

There was more riding on the project than just pleasing the Germans. An E-Base on the Ekström would greatly lessen the pressure on the long-haul cargo drivers, who must make several trips every summer between the shelf and SANAE IV. All Stassen and his team had to do was yank 440 tonnes of containers out of the 18m of ice that had engulfed Neumayer II. And decommission all of Neumayer II. And build a brand-new South African E-base. With a complement of 16 men. In the most unforgiving wilderness on Earth. In less than 40 days.

"We had to finish everything in one season," said Stassen. "Sending another crew at the end of 2010 would've been too expensive. It would've been nice to have 50 guys to help with the heavy-duty stuff, but it all comes down to cost. So we chose 16 capable people, but it would exact some blood along the way."

Blood, indeed. And, as the weeks on the ship dragged on, each day merging into the inevitable similarity of the next, no one was more acutely aware of this than Stassen's crew, who had by now begun pacing the halls of the ship and chain-smoking on the poop deck. Finally, after a merciful gap in the weather, which had been garroting the skies of Antarctica for days, Dreyer and Stassen ordered the recruits to kit up in their cold-weather gear and get onboard SANAP's two Bell 212 choppers. From there it was a 10-minute flight to Neumayer, where, after three weeks aboard the *SA Agulhas*, project Ice Stassen Zebra could finally commence.

Comprising an engineer, two architects, two chefs, several technicians, and even a South African archery champion, Jaco Wessels, who came for the adventure but mucked in with all the hard labour, the team worked 13-hour days, seven days a week, to complete the project by February 10.

According to Stassen, Neumayer II was very much based on SANAE III's underground shaft design. It seems, in fact, that SANAP's engineers and architects have always been ahead of the ice pack. In 1997, SANAE IV was the largest Antarctic station ever to be unveiled on stilts and it was only 12 years later that the Germans followed with their own above-ground, raised design.

Neumayer II, which is based at 70°39'S, 8°15'W, consisted of two parallel steel tunnels, each some 80m long and 8m in diameter. While the construction crew lived, ate and slept in the west tunnel, they harnessed a winch and sled system to begin lugging out the 58 containers that had made up Neumayer II, and kick off E-Base's construction. Environmental considerations were important in decommissioning the station—Stas-

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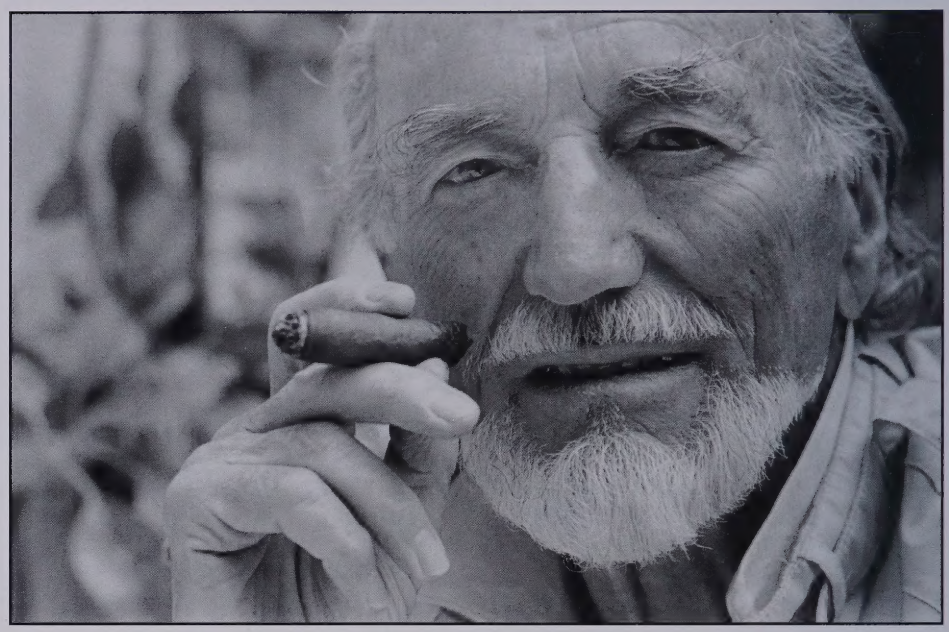
Photo by Tiara Walters

Looking south: the peaks of the Ahlmann Ridge

Due South

by Jeff Rubin, Antarctic Editor

Another Antarctic Giant Falls



"Scott, Shackleton, Mawson—I explored about 10 times as much as them all put together."

The greatest Antarctic explorer of modern times, Australia's Phillip Garth Law, has died at the age of 97.

Flags at Australian Antarctic stations were flown at half-mast in early March in honor of Law, who died peacefully in a Melbourne nursing home on 28 February 2010.

Though he was not as well-known as he should have been—especially in his own country—Phillip Law probably explored more of Antarctica than anyone else, ever.

He was leader of ANARE (the Australian National Antarctic Research Expeditions) from 1949 to 1966. In 19 years of exploring, he made 28 voyages to the Antarctic and sub-Antarctic, most of them as leader of the expedition. His coastal exploration made 28 landings at previously unvisited sites along 5,000km of East Antarctica's coastline. Under Law's directorship, all of Australia's Antarctic territorial claim, which amounts to 42% of the continent, was mapped.

"Scott, Shackleton, Mawson, and these men—I explored about 10 times as much as them all put together," he told *The Age* newspaper in Melbourne in 2008. "The reason I'm ignored is that I am not dead. Apparently if you are alive you are not a hero: you can't be famous 'til you die. So when I am dead people will put me on the list of Shackleton, Scott, and Mawson…. but not until then."

The simple reason that Law out-explored Amundsen, Byrd, Mawson, Shackleton and Scott was that he had the time, time funded by his government, which was beginning to see the value—strategic, territorial, scientific—of Antarctic exploration.

The 'Heroic Era' explorers were forced to raise money for their expeditions, a necessity Law was able to avoid. "They only went down for one or two years," Law said in *The Age* interview. "Because they were private enterprises, they couldn't afford to run more than one [expedition at a time]. In any case, they only had one ship. The reason I did more than any of them put together was because I kept going back…if I missed something one year I would go back the next year."

In February 1954, Law established Australia's Mawson station, the first base built in Antarctica outside the Peninsula region. "It was an exciting moment for me as we raised the Australian flag over the site," Law wrote in an article for my Antarctica guidebook. "I had been brought up on the stories of Scott and Shackleton and other explorers—and here I found myself in a similar position, on virgin territory, raising a flag and claiming the land in the name of the English sovereign."

In 1957, Law established Davis station, naming it after Capt. John King Davis, the master of ships used on expeditions led by Shackleton and Mawson. In 1959, Law negotiated with the U.S. to transfer the surplus Wilkes station to Australia, and he then supervised the building of its replacement, Casey station.

I first met Law at 'Serendipity,' his handsome home at 16 Stanley Grove in Canterbury, a quiet, leafy suburb of Melbourne. It was December 1987, not long after Australia had established Law Base, named in his honor. It was then a small summer-only facility in the Larsemann Hills not far from Davis station.

I had just returned from my first trip to Antarctica as a reporter for TIME Australia magazine, and among other places, I had visited Law Base.

I took a cab out from my hotel, and it wasn't hard to know when I had found 'Serendipity.' Parked in front was an early 1970s Citroën DS, bearing the license plate ANARE.

Unfortunately, a high wooden fence, painted white, completely surrounded the house. When I tried the front gate, it was locked. Cell phones were not common then, so I spent nearly three-quarters of an hour finding a neighbor who was home on a weekday morning and would allow me to use their telephone to call him.

I felt completely foolish when Law finally met me at the front gate and showed me that I only had to turn the ringbolt handle to unlatch the gate and allow myself in. I think he could hardly believe that someone could actually be so incompetent.

But soon we were talking in his den, overflowing with books and paintings, maps spread across desk and table. I was rapt as he told me about his work. "I felt the tremendous thrill of knowing that mine were the first eyes in the whole of Creation to gaze on the inland landscape below," he told me. "No one will ever be able to say that again—not even about Mars now, since the whole planet has been photographed."

By this time, Law seemed to have warmed up a bit, and he was genuinely interested in hearing about the current state of affairs at Davis and at the stations at Heard and Macquarie islands, all three of which I had just visited.

I next saw him in Washington, D.C. in October 1992, when he spoke at the National Science Foundation's old headquarters on G Street. This time I was three hours late, courtesy of Amtrak, which I rode down from New York, even though I left three hours early. I missed his entire presentation, but arrived in time to talk with him afterwards.

We also kept up an intermittent correspondence. To a November 1995 letter, he added, "P.S. I have just been informed that the Polar Medal (British) that I declined in 1969 has been re-offered to me and I have accepted." And then: "P.P.S. On 26 Nov. I flew to Antarctica as a guest of Croydon Travel on a 'Jumbo.' Wonderful views of the mountains and glaciers of Victoria Land west of the Ross Sea."

We met again in January 1996, when I was passing through Melbourne on the way to the Ross Sea. By this time, he had asked me to call him "Phil." When I returned from Antarctica at the end of February, we had a quiet dinner together at Pagnini, an Italian restaurant not far from his home. Again, he graciously fielded my many questions and returned them with queries about McMurdo, Scott Base and the Ross Island huts.

In June of that year, Phil visited New York. He hiked with some friends in the Adirondacks and after injuring a ligament in his knee, ended up walking for 18 hours to return to the trailhead! He was 84 at the time.

"The reason I'm ignored is that I am not dead. Apparently if you are alive you are not a hero: you can't be famous 'til you die. So when I am dead people will put me on the list of Shackleton, Scott, and Mawson.... but not until then."

He also left two messages on the answering machine of my Brooklyn apartment. "You must have been away," he wrote to me in August, and I was—on my honeymoon.

In early 2002, Phil sent an invitation to his 90th Birthday Celebration Luncheon, given on 19th April by the ANARE Club at the elegant Melbourne Cricket Club Members' Dining Room. I had to laugh, for a special note on the invitation—deemed necessary, no doubt, given Australians' well-known preference for casual dress—admonished: "Dress: Jacket and Tie, NO DENIM whatsoever, you will not be admitted without a tie or wearing denim."

I could not attend, but Phil sent me a program afterwards, reporting delightedly that "around 200 people" had come to help him mark the occasion.

A Man for Antarctica is the title of the first of two Law biographies by Kathleen Ralston. In Australia, he was known to headline-writers simply as "Mr. Antarctica."

"No one is quite the same after experiencing Antarctica," Phil once told me, adding acerbically: "More people should go down and see the place. Then you mightn't get so much nonsense written about it." ❑

"Tall Order" continued from page 7

sen had strict instructions to clear the two tunnels of everything except the steel tunnels themselves and some wooden frames. Twenty-two containers were given to the Russian Antarctic Expedition, which collected them at the end of March and plans to use them at either Progress or Novo station; 13 were shipped back to Cape Town for reuse; eight were left on the ice shelf to be removed at the end of this year and the remaining 15 were used to construct E-Base. All chairs, tables, beds and cupboards now used in E-Base came from Neumayer II. Whatever Neumayer III couldn't salvage, was broken up for recycling and backloaded onto the *SA Agulhas*.

By January 18, the team had achieved the astonishing feat of completing 85% of the project and moved into the half-completed E-Base, which they had stationed on stilts above ground. Their final days were spent decommissioning Neumayer II's east tunnel, closing up entrances with bulldozed snow and putting the final touches to E-Base. They completed the project ahead of schedule in early February.

Stassen was the structural engineer behind South Africa's very first E-Base, which was constructed on the nearby Fimbul Ice Shelf at 70°S, 2°W in the summer of 1983/1984. He was also SANAE IV's structural engineer and, as with all his other projects, E-Base II has its own big ideas. While SANAE IV was the first in Antarctica with a sewerage treatment and water-purification system, fibre-optic cables and a raised, fibre-glass design, E-Base's big idea—although it is not original—is a steel frame with a 3m ground clearance, which can be hydraulically jacked up by 2m every two years to beat the snow at its own game.

The 150m-thick Ekström Ice Shelf moves towards the sea at a pace of 100m a year. However, E-Base, whose lifespan is estimated at 15 years, is 6km from the ice shelf's edge—by the time it reaches the coast, the 15 containers that make up South Africa's summer depot will have been removed from their structural frames, by then hoisted some 20m, and used to build E-Base III. The steel, which is non-toxic, will eventually tumble into the sea with the rest of the calving ice.

The container interiors feature five bedrooms that sleep 20, two bathrooms, a kitchen with pantry, a dining room and a lounge. A transmitter and receiver get wireless Internet via Neumayer III. Each bedroom was fitted with South African as well as German plugs to enable the Germans to stay at E-Base during summer when they might need extra accommodation. The station has two glass doors, which allow the residents of E-Base to stay in touch with the sort of light that bounces off Dronning Maud Land's ice fields and makes the soul sing.

Except for the heating, hot-water plumbing and air-circulation systems, two ovens and some fittings, which were brought from South Africa, everything was constructed from reclaimed material. Even the foundations were made from reclaimed wood, an excellent material to create a foundation on ice as it is a poor conductor of heat. The wood was sunk into a 15m x 20m pit to a depth of 2.5m— "the point at which the ice becomes dense and hard," said Stassen—and covered by a steel base.

The 54-year-old Stassen, who has visited the Antarctic on 27 seafaring expeditions since 1983, thinks he might hang up his snow boots for good after one more visit to the world's biggest deep freeze at the end of the year. He wants a life in the forests on the southern Cape coast, in the arboreal hamlet of Sedgefield where he has bought a farm. When he does retire from the place of sun dogs, snow and sorcery, E-Base will be a fitting swansong to a lifetime's work in Terra Incognita.

"The best thing was that we were just a bunch of guys who got stuck in. We worked day and night—it's a source of pride that we achieved what we did in the time we had available to us," he remembered. "But best of all was that we were like-minded people—we enjoyed rugby and *braaiing* (barbecuing) meat, and we laughed at the same jokes. We got to the other side, and could look each other in the eye. That was nice." ❑ *For more on South Africa's Antarctic programme and its 50-year legacy, visit www.sanap.ac.za*

"SANAE at a Glance" continued from page 6

No one is allowed to travel beyond the station's grounds, except when a group field trip has been authorised by the station commander.

WEATHER: During winter 2009, the lowest temperature was -50°C. Last year the rancorous Antarctic night froze and burst the base's sewerage system; its repair was a bitter, bone-chilling job. The strongest wind recorded in 2009 was 200km/hour, which rattled the entire 135m base and sent saucers flying off shelves. Summer daytime temperatures typically hover between -5°C and -15°C.

WILDLIFE: Vesleskarvet is home to sensitive lichen colonies and microscopic invertebrates protected by the Antarctic Treaty. Since SANAE IV is based 178km inland and there is little sustenance for birds, even in summer, they are infrequent visitors to Vesles. There are, however, several breeding colonies of snow petrels on nunataks in the region, so these cloud-white birds are regularly spotted swooping over the station during the summer.

WHAT MAY SURPRISE YOU: When SANAE IV was launched in the late '90s, politicians from the newly elected African National Congress turned puce over the station's blue, white and orange livery, which had been commissioned towards the end of the apartheid era and resembled that regime's notorious political flag. Although orange and blue are the safety colours of Antarctica, the politicos were not convinced and there was nothing for it but to give the blue base an orange lick of paint. ❑

Dome Deconstructed

by Jeff Rubin

15 January 2010

The South Pole dome, which stood at 90° South as an iconic emblem of the U.S. Antarctic Program since 1975, is gone.

Made redundant by drifting snow and the inauguration of the elevated station, the dome had to be removed from Antarctica to comply with environmental provisions of the Antarctic Treaty.

Deconstruction — not demolition — began on 18 December 2009 when the dome crown was removed. The final panel was taken down on 15 January 2010.

The original plan was to save only the top three rings of the dome and return them intact to the Navy Seabee Museum in Port Hueneme, California on the return resupply vessel and to scrap the remainder of the dome, crating it up and shipping it back to the United States as time and cargo space allowed.

However, Construction Coordinator Steve Bruce and the entire deconstruction crew decided to try their utmost to disassemble the dome intact, for possible reassembly in the States someday.

Using tools called huck collar cutters—much like standard bolt cutters—workers split the huck bolt collars, thus releasing the bolts connecting the dome's panels together. Other useful tools included pneumatic-driven collar splitters and good old hammers, chisels and pry bars.

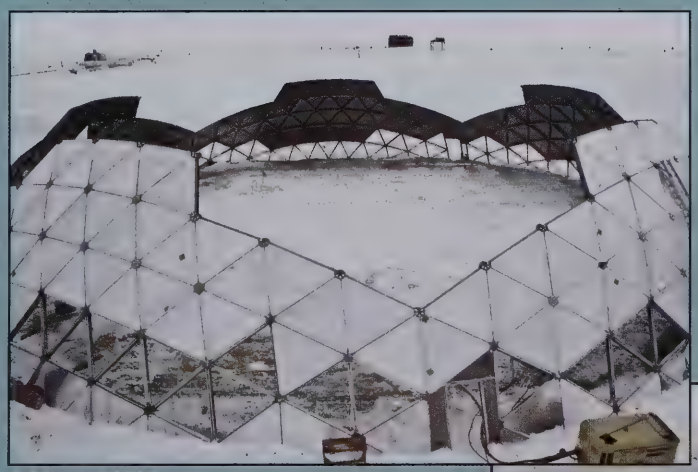
3 January 2010

29 December 2009

"The biggest challenge to disassembling the dome was to tell ourselves mentally (and believe it) that we could actually accomplish the task with the available equipment and within the scheduled time frame," said Bruce. "This didn't happen immediately at the beginning of the project, but unfolded slowly throughout. With each small success, our confidence grew and developed a momentum that eventually couldn't be stopped."

"A focused group of people disassembled the dome, intact, piece by piece, bolt by bolt as it were, in one month's time," he added. "More importantly, they did so with an impeccable safety record. Most importantly, they did so with a wonderful sense of humor throughout and a comraderie and family closeness rarely experienced."

Deconstruction proceeded so quickly that all of the dome was able to be removed from Antarctica on this year's resupply vessel to McMurdo Station.



The materials were all shipped to Port Hueneme—except for one panel. It was retained in the elevated station as a souvenir, signed by all those present during the deconstruction project.

Longtime Polie and professional photographer Forest Banks, a driller for the IceCube Neutrino Observatory project at Pole, documented the deconstruction. Here is a selection of his photos. ❑

USAP photos by Forest Banks

Antarctic Notes

Polar Sea Deployment Cancelled

The Navy Times, 28 June 2010—An engine breakdown has sidelined the Coast Guard icebreaker *Polar Sea*, which was supposed to deploy on its Antarctic patrol this fall, the service announced Friday. The breakdown will keep the icebreaker from supporting Operation Deep Freeze in the resupply of McMurdo Station. According to the announcement, *Polar Sea* will probably be unavailable until January. *Polar Sea* already has exceeded its 30-year life cycle — it was commissioned Feb. 23, 1978. In 2006, the service finished a rehabilitation project that was intended to extend its service life to 2014. The Coast Guard's other heavy, polar icebreaker, *Polar Star*, was placed in a caretaker status in 2006 and is undergoing a seven- to 10-year service life extension. It will not be ready until 2013. The Coast Guard's only other polar icebreaker — the smaller research icebreaker *Healy* — remains operational and started its Arctic summer patrol last week. Inspections of *Polar Sea*'s main diesel engines revealed excessive wear in 33 cylinder assemblies. The Coast Guard is investigating the root cause and hopes to have an answer by August.

SPRI Museum Transformed

***University of Cambridge press release*, 7 June 2010**— After a dramatic two-year and £1.75 million redevelopment made possible by the Heritage Lottery Fund, the Polar Museum at Cambridge University's Scott Polar Research Institute (SPRI)—which holds the expedition diaries of Sir Ernest Shackleton, the last letters of Captain Scott and his companions, and the photographic records of Herbert Ponting—will reopen to the public on June 9 after the 15-month closure. Among evocative items on display for the very first time are the Terra Nova journals of Henry Robertson Bowers, Shackleton's tea service, presented to him by the citizens of New York after his Nimrod expedition, and the UK's first full-scale exhibition of Inuit art. The museum holds the UK's largest public collection of Inuit art. "We can exhibit much more of our polar collection to the public than ever before and are now able to project not only the history of polar exploration, but also the contemporary significance of the poles in a warming world," SPRI Director Professor Julian Dowdeswell said. The museum is open Tues-Sat. 10 a.m. to 4 p.m. Entry is free.

Leopards' Songs Reveal Numbers

***Sydney Morning Herald*, 15 May 2010, by Nicky Phillips**—When male leopard seals are trying to attract a mate, they swim just below the ocean surface, turning themselves upside down and singing their own unique tune to seduce females. This keeps the males out of sight for long periods, causing scientists to grossly underestimate their numbers. New tracking techniques suggest there could be as many as 300,000 leopard seals living in the Australian Antarctic Territory (AAT), 10 times the number previously recorded. Ecologist Tracey Rogers of the University of New South Wales said leopard seals were usually tracked using visual surveys. These studies had put the number of animals in the AAT at about 14,000. But Professor Rogers said visual surveys were unreliable because leopard seals are solitary most of the year, and males spend most of the breeding season underwater: "If they're not laying on a piece of white ice, they can't be seen." Rogers and her colleagues deciphered the calls made by male leopards and recorded their numbers at various locations within the pack ice, comparing the number of seals seen with the number detected by the acoustics survey. "We detect 10 times more, and that's just the boys." The worldwide estimate of leopard seals was about 400,000, according to the International Union for Conservation of Nature. But Rogers's research suggests the number could be closer to 3 million.

300 Club's Future at Risk?

***Antarctic Sun*, 30 April 2010, by Peter Rejcek**—The average temperature at the South Pole in 2009 was -47.9°C (-54.2°F), the warmest year since temperature records began at Pole in 1957. Last year beat the previous record in 2002 by 0.1°C, according to Tim Markle, senior meteorologist at 90° South. Pole had gone two winters—2008 and 2009—without breaking the -100°F barrier, a requirement to join the exclusive 300 Club, in which winter-over Polies pile into a 200°F sauna and then go outside to the geographic pole wearing their boots and not much else. The lowest temperature in 2008 was -99.9°F and in 2009, -98.0°F. In 2007, the temperature plunged below -100°F for only about a minute on Sept. 2. This year, on April 13, the station recorded temperatures below -100°F for 22 minutes. "Not really all that long," Markle wrote via e-mail. "However, it was…long enough duration for one group of Polies to achieve membership status into the 300 Club."

Massive Southern Ocean Current Discovered

***Australian Commonwealth Scientific and Industrial Research Organisation (CSIRO) press release*, 26 April 2010**— A deep ocean current with a volume equivalent to 40 Amazon Rivers has been discovered by Japanese and Australian scientists near the Kerguelen plateau, in the Indian Ocean sector of the Southern Ocean. In research published today in *Nature Geoscience*, researchers described the current–more than 3km below the sea surface–as an important pathway in a global network of currents that influence climate patterns. "The current carries dense, oxygen-rich water that sinks near Antarctica to the deep ocean basins further north," says co-author Dr Steve Rintoul of CSIRO. "Without this supply of Antarctic water, the deepest levels of the ocean would have little oxygen." The current was found to carry more than 12 million m3/sec of Antarctic water colder than 0°C.

Deepest Peninsula Core Drilled

***Ohio State University press release*, 13 April 2010, by Earle Holland**—OSU researchers hope that the new core they drilled on the Antarctic Peninsula will contain ice dating back into the last ice age. The expedition in late December and early January to the Bruce Plateau, an ice field straddling a narrow ridge, yielded a core 445.6 meters long, the longest yet recovered from the Peninsula. And while remarkably successful, the work tested the researchers' resilience. "It was the field season from hell," explained leader Ellen Mosley-Thompson, OSU professor of geography. "Everything that could go wrong did, and almost everything that could break did." The effort was part of the LARISSA (Larsen Ice Shelf System, Antarctica) project, designed to unravel past climate conditions and monitor current ocean and atmospheric processes to better understand what likely caused portions of the Larsen Ice Shelf to disintegrate in 2002.

Ice-Tracking Satellite Launched

***Bloomberg*, 8 April 2010, by Alex Morales**—The European Space Agency launched its CryoSat-2 satellite on a $190 million mission to measure the thickness of ice on Greenland, Antarctica, and the polar seas. The launch from Kazakhstan's Baikonur Cosmodrome comes four years after the original satellite was lost due to a failure of the launcher. The satellite will use radar to gauge the elevation of floating ice and grounded ice caps during its 3-1/2-year mission.

Raytheon Awarded Contract Extension

***Raytheon* press release, 5 April 2010**—Raytheon Polar Services (RPS) was awarded a one-year extension to its current contract for science, operations and logistics support to the U.S. Antarctic Program. The extension will take the contract to March 31, 2011. RPS employs about 350 full-time staff and hires approximately 1,400 contract employees from its offices in Centennial, Colo.

Heavy Fuel Ban Forces Out Big Ships

***USA Today Cruise Log blog*, 3 April 2010, by Johanna Jainchill**—Beginning in August 2011, most large cruise ships will no longer be able to sail in Antarctica. The International Maritime Organization this week adopted a ban on using and carrying heavy bunker fuel on ships operating in Antarctic waters. The regulation essentially bans cruise ships with more than 500 passengers from Antarctica, because even though they would agree to use lighter fuels there, the ban on carriage would prove too costly. According to the International Association of Antarctica Tourism Operators, the number of cruise-only passengers visiting Antarctic waters is expected to fall from 15,531 this past season to 6,400 once the ban takes effect.

Korea Picks Site for Second Base

***Korea Times*, 17 March 2010, by Kim Tonghyung**—South Korea has selected Terra Nova Bay as the site for its second research station in the Antarctic (see "Antarctic Notes," *The Polar Times*, July 2008), complementing King Sejong base, opened in 1988. Terra Nova Bay, along the coast of Victoria Land, offers easier accessibility and better operational conditions compared to other candidate sites such as Cape Burks, according to government officials. It is also home to Italy's Zucchelli Station. The new Korean base will cover about 3,300m2, consisting of five buildings accommodating 60 staff. Construction will cost about $88.4 million, and is expected to begin in 2013 and be completed around April 2014.

Missing Hose Costs $400,000

***Australian Associated Press*, 17 March 2010**—Australia's Antarctic ship *Aurora Australis* has racked up a huge unnecessary expense on its current voyage after it was discovered a vital piece of equipment had been left on the dock in Hobart. The ship is due at Davis Station this weekend but before arriving there it off-loaded cargo at Macquarie

Island and was supposed to supply fuel to the sub-Antarctic station. But it wasn't until the specialist refuelling crew of about half a dozen got settled on the voyage that they realised the ship-to-shore refuelling hose was missing. The Australian Antarctic Division blunder has forced it to organise a special additional return voyage to Macquarie Island at a cost sources say will start upwards from US$400,000.

Sea Bass Dinner Deprives Orcas

***Wired*, 11 March 2010, by Brandon Keim**—A one-of-a-kind killer whale population appears to be threatened by human appetites for Antarctic toothfish, better known to restaurant-goers as Chilean sea bass. As fishing fleets patrol their waters, catching what was their primary source of food, the orcas are vanishing. It's not certain whether they've only moved on, or are dying out, or both. "There's been a dramatic disappearance of the whales," said biologist David Ainley, co-author of a March *Aquatic Mammals* article on the whales' disappearance. "We think they're having a harder time trying to find food."

Clues to Antarctica Space Blast

***BBC News*, 3 March 2010, by Paul Rincon**—A large space rock may have exploded over Antarctica thousands of years ago, showering a large area with debris, according to new research by a team from the University of Siena, Italy. The evidence comes from accumulations of tiny meteoritic particles and a layer of extraterrestrial dust found in Antarctic ice cores. The "airburst" event would have been similar to the Tunguska event, which flattened a large area of Siberian forest in 1908. The research is based on a study of extraterrestrial debris found in granite from Miller Butte, in the Transantarctic Mountains, and a layer of cosmic dust represented in both the Dome C and Dome Fuji ice cores, from sites more than 2,900km apart, each dated to about 481,000 years ago.

Scientists Locate Apparent Deep Sea Vents

***Columbia University press release*, 3 March 2010**—Scientists at Columbia's Lamont-Doherty Earth Observatory have found evidence of hydrothermal vents on the seafloor near Antarctica. In recent decades more than 220 vents have been discovered worldwide, but so far no one has looked for them in the waters off Antarctica. At her lab in Palisades, N.Y., geochemist Gisela Winckler analyzed thousands of oceanographic measurements, and with colleagues pinpointed six spots on the remote Pacific Antarctic Ridge, about 1,000 miles from the Antarctic coast, where they think vents are likely to be found. The sites are described in *Geophysical Research Letters*. "They haven't found vents, but they've narrowed the places to look by quite a bit," said Edward Baker, a vent expert at the National Oceanic and Atmospheric Administration.

Fur Seals' King-Sized Fast Food

***BBC News*, 21 January 2010, by Matt Walker**—Antarctic fur seals have been filmed catching and eating king penguins in the open ocean, behaviour not seen before. Male Antarctic fur seals are known to occasionally take king penguins on land. The preference for king-sized fast food has evolved among fur seals living at Possession Island in the Crozet Islands. Details are published in *Polar Biology*. So far, researchers have not documented female Antarctic fur seals attacking king penguins at sea, though it is unclear why the females do not also hunt penguins. At nearby Marion Island, where most documented attacks by Antarctic fur seals on shore-bound penguins occur, males, particularly sub-adult males, are responsible.

PIG 'Past Its Tipping Point'

***New Scientist*, 13 January 2010, by Shanta Barley**—Pine Island Glacier (PIG), one of many at the fringes of the West Antarctic ice sheet, has passed its tipping point, according to a new modelling study published in *Proceedings of the Royal Society A*. After losing increasing amounts of ice over the past decades, it is poised to collapse in a catastrophe that could raise global sea levels by 24cm. In 2004, satellite observations showed that it had started to thin, and that ice was flowing into the Amundsen Sea 25% faster than it had 30 years before. Now, the first study to model changes in the ice sheet in three dimensions shows that PIG has probably passed a critical "tipping point" and is irreversibly on track to lose 50% of its ice in as little as 100 years, significantly raising global sea levels. The research team—Richard Katz of the University of Oxford and colleagues—admits their model can represent only a simplified version of the physics that govern changes in glaciers, but say that if anything, the model is optimistic and PIG will disappear faster than it projects.

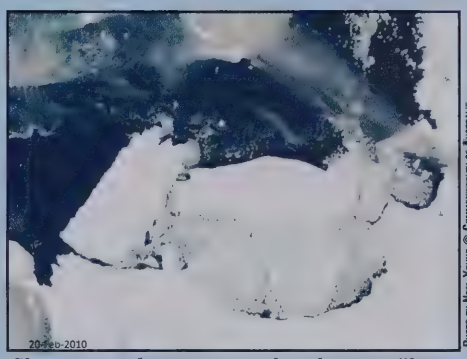
Tern's Migration Double Previously Thought

***National Geographic News*, 11 January 2010, by Mason Inman**—The tiny Arctic tern makes the longest migration of any animal in the world, flying about two times farther than previously thought, says a new study published in *Proceedings of the National Academy of Sciences*. Miniature transmitters recently revealed that the 113-gram bird follows zigzagging routes between Greenland and Antarctica each year, covering 71,000 km—edging out its archrival, the sooty shearwater, by roughly 6,500 km. Since the birds often live 30 years or more, the researchers estimate that, over its lifetime, an arctic tern migrates about 2.4 million km—equal to three round-trips to the moon. The team used a tiny tracker developed by the British Antarctic Survey, which weighs just 1.4 grams—light enough for an Arctic tern to carry on a band around its leg. Researchers were surprised to find that the birds often stop for a month in the open North Atlantic Ocean, probably to "fuel up" on fish and small crustaceans before setting off to cross the tropics. Arctic terns also follow a zigzagging route on their spring trips back to Greenland. Rather than flying straight up the middle of the Atlantic, the birds hopscotch from Antarctica to Africa to South America to the Arctic, apparently following huge spiraling wind patterns in the atmosphere and avoiding flying into headwinds.

Why Did Vostok Go So Low?

***British Antarctic Survey (BAS) press release*, 11 January 2010**—Results from the first detailed analysis of Earth's lowest recorded surface temperature can explain why it got so cold and how cold it could possibly get. During the Antarctic winter of 1983, July temperatures plunged to a record-breaking −89.2°C at the Russian Vostok station—more than 30°C lower than the average winter temperature. Until this study, scientists did not understand why or how the temperature on the vast East Antarctic plateau could get so low. BAS and Russian scientists found that for a 10-day period, the air flow normally fed from the Southern Ocean on to the high Antarctic plateau almost stopped. A flow of cold air circling Vostok was preventing the mixing of this warmer air from lower latitudes, isolating the station and causing near optimum cooling conditions. Added to this was the absence of cloud cover and diamond dust (tiny particles of ice suspended in the air) allowing more heat from the ice surface to be lost to space. The researchers estimate that should a longer period of isolation occur, the surface temperature at Vostok could drop to around −96°C. The higher site of Dome Argus has the potential to record even lower temperatures, possibly below −100°C. ❑

Vast New Berg Could Disrupt Currents



Slow-motion battering ram knocks out a "loose tooth"

***Agence France Presse*, 25 February 2010, by Marlowe Hood**—An iceberg the size of Luxembourg knocked loose from the Antarctic continent earlier this month could disrupt the ocean currents driving weather patterns around the globe, researchers said. While the impact would not be felt for decades or longer, a slowdown in the production of colder, dense water could result in less temperate winters in the north Atlantic. The 2,550 km2 (985 sq. mile) block, some 400m thick, broke off on February 12 or 13 from the Mertz Glacier Tongue, a 160-kilometer spit of floating ice protruding into the Southern Ocean from East Antarctica. "The ice tongue was almost broken already. It was hanging like a loose tooth," said Benoit Legresy, a French glaciologist who has been monitoring the Mertz Glacier Tongue via satellite images and on the ground for a decade in cooperation with Australian scientists. The new berg, 78 km long and half-again as wide, was dislodged by another, older iceberg, known as B-9B, which calved in 1987 and is about the same size. Jammed against the Antarctic continent for more than 20 years, B-9B smashed into the Mertz Glacier Tongue like a gigantic, slow-motion battering ram. ❑

Cornwallis Island Adventure, Arctic Canada, 1952

by Herbert R. Drury

Just two months out of college, I was privileged to participate in a once-in-a-lifetime hike of about 100 miles to Intrepid Bay on the north end of Cornwallis Island in Canada's Northwest Territories. I was one of several student assistants working for the U.S. Weather Bureau Polar Operations Project in Resolute Bay near the south end of the island. Our camp was near another one established by the Royal Canadian Air Force, and these became the main re-supply bases for several joint U.S./Canadian weather stations scattered across the polar regions of Canada during the 'Cold War' era. Resolute is now a military base protecting Canada's Arctic interests. The late Robert F. Jasse was also working there collecting bird specimens and observations for an eastern university. He wanted to confirm earlier sightings of Brant geese around the Intrepid Bay region some forty miles north of Resolute, but needed someone to accompany him to that uninhabited area, and I was allowed to go along.

Photos courtesy of Herbert R. Drury and the estate of the late Robert F. Jasse

One of us on the hike in the wilderness — part of the "Barren Lands" of Canadian Northwest Territories on Cornwallis Island near which the last ill-fated expedition of Sir John Franklin had wintered at Beechey Island, as discussed in Herb Drury's book review of The Man Who Ate His Boots *elsewhere in this issue of* The Polar Times*).*

We made good progress the first few days on the way toward Intrepid despite the weather conditions. Luckily for us the almost constant wind kept the snow accumulation to a minimum without seriously reducing visibility until later in the trip. Many different kinds of wildlife were seen and recorded, including eider and old squaw ducks, glaucous and Thayer's gulls, various terns and jaegers (a type of predatory gull), kittiwakes, snow buntings, snowy owls, ptarmigan, lemmings, foxes, seals, walrus, polar bears, and one unfriendly bull musk ox, as will be explained shortly.

Bob Jasse with a dead walrus.

A few government and university scientists had been working on Cornwallis Island that year and had put out food caches which we hoped to utilize on our traverse. We had trapped and banded many small birds for Bob's studies before getting permission for our hike to Intrepid Bay where he hoped to observe and collect specimens of other species and possibly extend the known range of the Brant goose.

He and I left Resolute early on the afternoon of August 22, 1952 with heavy backpacks, cameras, guns, a Tenth Mountain Division two-man tent, a caribou skin ground cloth, sleeping bags (the old chicken feather-filled W.W. II type), some K-rations, a very small, white gas stove about the size of a banana, and quite inadequate foot gear as it turned out. Bob had hiked part of the way previously, and knew the approximate location of two caches on our proposed route. It began snowing the second day out and continued for much of our nine-day trip which we noted in separate journals along with our wildlife observations and daily progress. Bob was kind enough to send me a copy of his field notes when we reconnected some fifty years later, having lost touch soon after our ordeal. Unfortunately he died unexpectedly before I could consult further with him, so this story is based largely upon both of our old notes.

> *What appeared to be relatively level terrain often turned out to contain ridges, gullies or canyons with steep, rocky faces that somehow remained hidden until one almost fell into them.*

Our way crossed vast expanses of open, 'barren' land of varying topography and geology including clay, sand, gravel and boulder fields, grassy hummocks, dry plains and squishy swamplands, almost none of which were easy to navigate. What appeared to be relatively level terrain often turned out to contain ridges, gullies or canyons with steep, rocky faces that somehow remained hidden until one almost fell into them. Foot travel with our heavy backpacks was slow and laborious, and we longed for the snow machines used by the geographers earlier that year on the snow-covered ground. There was not a bush or tree anywhere to break the constant winds or give clues to the unevenness of the land. To make matters worse, Bob's poorly adapted 'shoe-

Jasse resting along the way.

packs' (leather-topped rubber boots) wore through the soles when we were at about our farthest point from home. Luckily for us, I had brought along an extra pair of ankle-high leather boots. We eventually had to swap footgear, but neither was a good fit so we suffered severe consequences as a result. Bob got a bad ankle, and I developed a sore knee to add to our swamp-soaked, blistered feet in the freezing cold.

Our old army mountain tent was coated to make it water-repellent but had only one small 'breather tube' for ventilation. As our famous Tenth Mountain Division soldiers soon discovered no doubt, such a tent retains all the moisture from the breathing of its inhabitants which condenses on the inside walls in cold weather and runs down to puddle along the bottom. Anything nearby gets soaked, as we discovered much to our regret. We were novices in a strange land, and probably were lucky to survive at all.

This photo is not from the Cornwallis trek but illustrates a musk ox herd in typical "defensive" formation.

On our fourth day out, after finding little left by bears and foxes of the first cache that we located, we finally reached Intrepid Bay. We observed such things as lemming holes, abandoned bird nests, owl pellets and goose droppings, but no Brant, only 18 snow geese that flew by one day. We saw occasional seals and walrus, plus numerous waterfowl, this being part of the great breeding grounds for birds in the Western Hemisphere. As we worked along the shore of Intrepid Bay we came upon the carcass of a young walrus floating next to the beach, but could not tell how or why it had died.

Later we found fresh musk ox (Ovibos moschatus) tracks in the snow and followed them for a while. We soon spotted the maker lying out in a huge snowfield, his long guard hairs and marvelously soft under-wool (called 'qiviut' by the natives) keeping him warm. We cautiously approached, Bob's camera ready to record this unique and impressive mammal, the first we had ever seen. Neither of us knew what to expect.

> *... after finding little left by bears and foxes of the first cache that we located, we finally reached Intrepid Bay.*

The bull eventually arose and rubbed his nose on one short foreleg, apparently a sign of agitation, unfortunately meaningless to us at the time.

> *We finally knew firsthand how those early explorers felt while dying in the brutal Arctic!*

But since we were required to carry a high-powered rifle for protection from polar bears, I went on guard while Jasse tried to get some close-up movies. Suddenly the beast charged my companion at full speed without warning. I waited until the last possible moment, then fired a single round. My shot dropped the animal only about twenty feet from its intended target. Bob had realized he was being charged only when he could not focus his lens. The poor animal, about four feet high and perhaps 800 pounds in weight, staggered to its feet and hobbled back to its bed. Then to our great dismay and sadness, the Arctic monarch collapsed and died.

Herb Drury with dead musk ox bull which he shot when it charged Jasse.

> *We were novices in a strange land, and probably were lucky to survive at all.*

We could do nothing for it and had no way to cook or eat it. All we could do was take some photos and report it to the authorities upon returning to base since killing musk oxen was illegal.

On our way back we peeked over the ridge above where we had found the dead walrus. A young polar bear was feeding on it but had not detected us. Bob tried to get movies of it from a safe distance, but the film shredded in the cold. The bear finally smelled us and fled over a small iceberg and swam across the bay. We had earlier seen a huge, creamy colored bear that stood up about a mile away across a lake. We estimated its height to be ten feet or more! Sadly, we never got any pictures of those great bears.

The last three days of the journey back to Resolute were a real nightmare. The snow, cold and wind increased considerably, the ground became more impassable, and our foot problems worsened in the swamplands. Our tiny stove failed us as we ran out of rations and missed entire meals. The tuna fish-sized tins of powdered eggs found at the caches were useless to us, and we began to seriously fear for our survival. Crossing gullies became increasingly common and painful. And the bird, rock and fossil specimens we'd gathered slowed our progress. We finally knew firsthand how those early explorers felt while dying in the brutal Arctic!

Eventually Bob and I reached the Canadian air base to be rewarded with warm beer and revival food from some great neighbors. I was later flown out to Montreal, Canada on my twenty-third birthday. Two years later, because I was 'familiar' with musk oxen, I became part of the first John J. Teal, Jr. expedition to Thelon Game Sanctuary west of Hudson Bay that resulted in capturing the first three musk ox calves for his domestication project.

That original group of men brought its captives back to Teal's Vermont farm, and the resulting herd of oxen now lives in Palmer, Alaska where very fine, expensive qiviut wool products, knitted by native women, are sold. The program provides a living to people in several Alaskan coastal villages, and is currently in need of financial support. So, despite the needless death of an old bull musk ox, some good came from our almost disastrous efforts. I am proud to have been involved in that process, and although we nearly died on our trek, I would not have missed it for anything! ❑

Mount Gardner (4,573 m) (78°23'S, 86°02'W) is the fourth highest mountain in Antarctica. • Photo taken by John Splettstoesser, January 1962, with Zeiss 50 mm camera.

That Was Then; This is Now...

by Moki Kokoris

Spin your globes to view Canada, more specifically to the region directly west of Greenland. This territory is currently known as Nunavut. Now, zoom in on Baffin Island, and then further in to Foxe Basin along its western coastline. Tucked into the northern corner of the bay, to the right of the Melville Peninsula and near the entrance to the Northwest Passage, lies a small island named Igloolik (or Iglulik). The Inuktitut name "Igloolik" means "there is a house here" — from "iglu," meaning house or building, referring not to snow igloos, but to the original sod houses of the area. The residents are called Iglulingmiut (~miut, meaning "people of"). Other Inuit from neighboring Aivilingmiut and Turnunirmiut populations also live here, the majority of them still following their traditional lifestyles.

Evidence from artifacts gathered at Igloolik's numerous archeaological sites shows that the island has been inhabited for at least 4,000 years. The first known European contact with the community came in 1822 when two Royal Navy exploration vessels, HMS Fury and HMS Hecla, both under the command of Captain William Edward Parry, wintered at the small island.

In 1867 and 1868, American explorer, Charles Francis Hall, stopped there during his search for survivors of the lost Franklin Expedition, and in 1921, Igloolik was visited by a member of Knud Rasmussen's fifth Thule Expedition. The first permanent presence by southerners came with the establishment of a Roman Catholic mission in the 1930s. By the end of that decade, Hudson's Bay Company — the oldest commercial corporation in North America, and at one time Canada's largest private landowner — had also set up a post on the island.

Photo by Artcirq, courtesy of Artcirq Productions © 2010

Artcirq perform the "Trampouline" at Igloolik Point, 2005.

As remote as this small island may be, Igloolik is an active and popular place. Today it proudly boasts the Igloolik Research Centre, commonly known as "the mushroom." As part of the polar continental-shelf research program of Natural Resources Canada, this facility is used for environmental monitoring programs, studies of traditional Inuit technology and knowledge, and support for visiting scientists.

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Town of Igloolik.

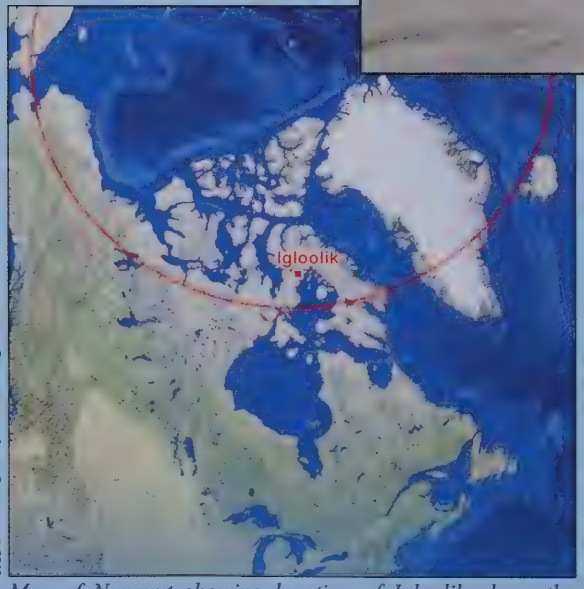

Photo courtesy of Artcirq Productions © 2010

Map of Nunavut showing location of Igloolik above the Arctic Circle.

Igloolik is also now home to a real "Hollywood North," Isuma Productions, which has produced a number of award-winning features and documentaries, among them *The Journals of Knud Rasmussen.* Igloolik Isuma Productions, Inc. is Canada's first Inuit independent production company and is 75% Inuit-owned. The first aboriginal-language Canadian feature movie, *Atanarjuat* ("The Fast Runner"), released in 2001, was a $1.96 million historical thriller based on an Igloolik legend of love, jealousy, murder and revenge. Filmmaking in Igloolik contributed $1 million to the local economy, creating more than sixty part-time and twenty full-time jobs in this isolated and underemployed community.

One of the more unexpected and intriguing recent developments in Igloolik is its now famous circus, Artcirq. In December 2009, the troupe presented three shows at COP-15 in Copenhagen, and in February 2010, six members of Artcirq represented Nunavut in performances at the 2010 Olympic Winter Games in Vancouver, British Columbia. Artcirq has even performed in places as far away as Timbuktu, Mali, replacing snow with sand at the Festival au Désert, as it traveled from temperatures as low as -58.0° F up to 104° F. Polar nomad to desert nomad, cultures collided and melded, introducing one's traditional lifestyle to the other's. Just before Artcirq were to go onstage, they placed a block of ice at the edge of the platform and vowed to perform for as long as it took the ice to melt.

Unlike most circuses that are established solely to provide entertainment for their audiences, Artcirq's inspiration has very serious roots. In the Arctic, the impacts of a changing environment, and shifting lifestyles commonly induce in many inhabitants a lack of purpose and a pervasive sense of hopelessness and loss. Not possessing the tools and skills with which to remedy these conditions,

"That Was Then" continued from page 15

many Igloolik teenagers suffer from serious depression. The consequences are all too often tragic. Government statistics from the late 1990s show that between four and six young adults commited suicide in Igloolik every year, a rate seven times higher than in Montreal. In the summer of 1998, two young men took their lives, once again shattering this small island community of 1500 residents, and leaving the inhabitants wondering what they could do to stop the miserable trend.

Following this tragedy, it became clear that concrete actions had to be taken to provide children and teenagers with a vehicle for creative self-expression and communication. Initiated by the artist collective *Isuma Productions*, a group was formed with a mission of suicide prevention, using theatre arts as its medium. It was named *Inuusiq*, which means "life" in Inuktitut.

Guillaume Ittuksarjuat Saladin, a Québecois who had spent the first 15 summers of his life on the island, himself a member of Inuusiq, had returned to Igloolik to complete his thesis and prepare for entry into the National Circus School in Montreal. Inspired by *Clowns Without Borders*, an organization that sends clowns to third world countries and war zones to work with children, Saladin proposed that the budding youth theatre group combine cultural activism with the teaching of circus skills.

Invited by Inuusiq, six performers from the National Circus School of Montreal came to give a show at Ataguttaaluk High School at the end of the school year, and stayed three additional weeks to do workshops with the community. With little more than an accordion, juggling objects, a unicycle, fire, and some costumes and colorful hair, the performers fascinated their young audience, who enthusiastically enjoyed their first experience with the bold and comic spirit of the circus.

Photo by Artcirq, courtesy of Artcirq Productions © 2010

Igloolik children in performance standby, 2006.

> *Polar nomad to desert nomad, cultures collided and melded, introducing one's traditional lifestyle to the other's.*

ARTCIRQ promotional poster. (Graphics and photo courtesy of Artcirq Productions © 2010)

Over the course of these three weeks, Inuusiq brought the Montrealers together with young Inuit and elders from Igloolik for an expedition across Baffin Island, the purpose of which was to present its show and share its message with local youth in other communities. During this journey, the young expedition members learned more about their own land, were exposed to traditional Inuit ways of life, and even explored Baffin Island's east coast.

Begun as a noble yet simple project in innovative social occupational therapy, the Inuusiq youth drama group evolved into a community-based multimedia company, now known as the *Artcirq Inuit Performance Collective*. Le Cirque du Soleil sponsors the purchase of Artcirq's circus accessories. With Saladin as its Artistic Director, Artcirq is composed of more than 30 members, including actors, musicians, jugglers, contortionists, hand-to-hand flyers and indigenous throat-singers, all of whom are deeply involved in the cultural life of Igloolik. The group's achievements have led to the creation of its own Artcirq Channel and to Isuma.tv, which is now accessible to everyone on the Internet.

The addition of video-making to Artcirq's projects allows the Inuit to overcome their geographical isolation, thereby establishing a coherent bond between their ancestral ways and the realities of a contemporary world.

As word of Artcirq's successes spreads, the troupe not only travels across the globe with its performances, workshops and message, but it serves a very important function – to motivate other Arctic communities facing similar challenges to establish their own self-esteem enhancing initiatives. Most importantly, Artcirq intends to be a project for youth, by youth.

In one of Artcirq's routines, titled *Oaraya*, or "can't wait," while the performers wear traditional Inuit clothing and reenact behaviors of their native seals, they also draw from influences of other cultures by incorporating Chinese music and African drums into their act. The international scope of these performances reflects how the Arctic is not as isolated at it once was, now that television and the Internet have reached Nunavut's communities. But for all its global aspirations, Artcirq nevertheless remains distinctly Inuit.

An abandoned swimming pool drained of its water, old mattresses salvaged from the dump, and a circus trainer may be odd ingredients with which to fashion a suicide prevention program, but that is all that was needed to turn Igloolik's despair and powerlessness into hope and a sense of belonging. In a land where ancient ways and the modern world clash, Artcirq has managed to transform disillusioned teens and young adults into engaged community members who carry their pride of heritage far beyond their little island's boundaries.

…and all without elephants! ❑

Photo by Artcirq, courtesy of Artcirq Productions © 2010

Artcirq performance of the "Polar Bear" at the Alianait Festival, 2007.

Yukon Quest: The Less Famous "Last Great Race"

by Dave Norton

Drawing far less media attention than the Iditarod Trail Sled Dog Race, the Yukon Quest each February is considered an equal or greater athletic challenge. In even years, teams, sleds and mushers start this race in Fairbanks and finish 1,000 miles (1,600 km) later in Whitehorse, Yukon Territory (see map). In alternate years they reverse the start and finish.

In either direction, Quest teams run on the ice covering the Yukon River itself for almost 400 miles (640 km). River ice can be extremely rough in some years, but also can have patches of standing water saturating knee-deep snow atop the ice. The trail crosses four mountains or mountain ranges, where drifting snow can obliterate the trail, hoarfrost can hide markers, and high winds can blow the ground entirely bare. Wind chills and extremely low temperatures can slow teams' progress. Mushers nevertheless actually dread warm weather, liquid water, and trail conditions that are too fast for safety more than they dread the cold.

Then, there's the fearsome 30° slope on the eastern side of Eagle Summit. In odd years it is an exhausting, steep ascent just over 100 miles from the finish in Fairbanks. In even years, some mushers wrap their sled runners with chains. Chains supplement their sled's brake, to check its descent from becoming a series of rear-end collisions with a team of panicked dogs harnessed together. In 2010, musher Norman Casavant from Québec flipped his sled on its side at the top of the slope. He clung to it for dear life and was dragged, also on his side, bumping and sliding, down the mountainside. At the bottom, he got up, shook the snow out of his parka, tipped the sled upright on its runners, and set off again. Reflecting on his orderly descent he decided that — style be damned — his unconventional braking action spared him the scary plunge that Quest veterans promise less experienced racers (http://newsminer.com/view/full_story/5823478/article-Yukon-Quest-racers-cross-Eagle--Rosebud-summits-on-first-full-day).

Like many northern institutions, legend traces origins of the Yukon Quest 1,000-Mile International Sled Dog Race (as it is formally known) to a bar. Four dog mushing enthusiasts in 1983 agreed over libations that the Iditarod race (about 10 years old by then) had become too large, high-tech, and media-dominated. Why not organize a race that emphasizes self-sufficiency, and perpetuates the skills of gold rush era pioneers in neighbouring Alaska and Yukon Territories? *The Polar Times* (January 2007:23-24) contained a review of Dan O'Neill's book, "A Land Gone Lonesome," which describes the country, its landmarks and the historic depopulation of human settlements along the Yukon River between Circle, Alaska and Dawson City, Yukon. Several other books specifically chronicle the race and its entire route between Fairbanks and Whitehorse.

Mirror-image organizations in Fairbanks and Whitehorse formed to organize and raise support for the Quest, the first running of which took place in 1984. Over its 27-year history, the Quest has evolved, prospered, nearly gone extinct, then rebounded. Every year, organizers have made numerous adjustments, great and small. One adjustment in 2010 was to start the Yukon Quest one week earlier, to allow more time for a growing number of the hardiest competitors to recover from this race before starting the thousand-mile Iditarod in early March. Moving the Quest's start from the second to the first week in February was a calculated risk: each racing day would be about ¾ of an hour shorter than in 2009, and trail temperatures could be expected to dip lower in valleys and at night.

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Another innovation in 2010 was for the mushers voluntarily to carry GPS locators, such that "spectators" could follow individual teams by their satellite-tracked global positions based on Google Earth. There were 1.7

SOURCE: HTTP://WWW.YUKONQUEST.COM

A finishing dog team in Fairbanks, Alaska, is immediately examined by veterinarians at the end of the 2009 Yukon Quest Sled Dog Race.

SOURCE: HTTP://WWW.YUKONQUEST.COM

Hans Gatt arrives in Dawson City YT in first place at the halfway point of the 2010 Yukon Quest Sled Dog Race.

million "hits" on the GPS tracking part of the Yukon Quest's web page (http://www.yukon-quest.com) during the race, originating from 169 countries. The Iditarod race has already adopted GPS tracking, but that race's website charges web users to access it. So long as the Yukon Quest tracking remains free, I know I'll find it irresistible to peek a couple of times a day at who is making strategic "moves" along the race route.

To illustrate intriguing "moves," some mushers failed to reactivate their GPS transmitters for parts of each 24-hour day and were suspected of leaving them off to avoid divulging tactics to gain ground on their nearest competitors. The two leading mushers, Hans Gatt of Whitehorse and Lance Mackey of Fairbanks, were dueling one another by the halfway point of the race at Dawson City, Yukon. Upon arriving at one checkpoint near Dawson, Gatt told reporters that he had lost the trail on the river, and had to walk ahead of his dogs for a couple of hours to relocate the trail. Whether or not this was effectively a ruse or "mind game" between himself and Lance Mackey could not be verified: his GPS was not transmitting. This is just the kind of story that mushers have been known to plant to lull their rivals into relaxing their pace.

The calculated risk of holding the Quest a week earlier paid off. Trail conditions were mild and fast, and only two of 24 teams "scratched" (withdrew from competition before completing the trail). That is 8 percent compared to an average scratch rate of about 30 percent of teams.

Hans Gatt set a new speed record in winning the 2010 Yukon Quest, and ended Lance Mackey's string of four first place finishes in the Quest. Lance finished second, about an hour behind Gatt. The following month, Mackey finished first for the fourth year in a row in the Iditarod. Long-distance mushers and breeders like Gatt and Mackey have raised the athletic prowess of sled dogs from their kennels to levels unimagined a few years ago. Mackey's have been the first and so far the only teams to win both 1,000-mile races in the same year, a feat he has accomplished twice (2007, 2008). Those feats are all the more inspiring because Mackey is a cancer survivor who contends with side effects from surgery and treatments he underwent several years ago.

One advantage of being bathed in less media glare than the Iditarod is that the Yukon Quest seems to be too small a target for slings and arrows of animal rights' groups. A couple of those charge competitive dog-mushing enthusiasts with all manner of cruel treatment of dogs. One organization that persists in alleging cruelty to Iditarod dogs is headquartered in Florida. Perhaps that distance makes it impossible for complainants to appreciate the many provisions that both distance races furnish for regular competent veterinary examinations of these canine athletes, before, throughout, and after each race. For information from the Web, Wikipedia accounts of the two "last great races" are both good. The Yukon Quest's is especially complete, informative and is updated promptly. ❑

SOURCE: HTTP://WWW.YUKONQUEST.COM

Race course for the 2009 Yukon Quest, Whitehorse YT to Fairbanks AK.

Of Polar Bears and Sled Dogs

Dave Norton's report on the Yukon Quest sled dog race brings to mind those incredible photographs by world-renowned wild animal photographer Norbert Rosing that have been widely circulated on the Internet the past several months. Rosing had been staking out his sled dogs for a night of rest when suddenly a 1,500-pound male polar bear appeared on the scene. Rosing quickly retreated and thought his dogs were certain to be dinner for this uninvited guest. Much to his shock and surprise, the polar bear and one of the sled dogs began to frolic and cavort, playing like puppies in a litter. Rosing caught this phenomenon on camera and, to his further amazement, the bear returned the next day for another round of play with the sled dog.

Unfortunately for our readers, *National Geographic*, which represents Mr. Rosing, will not grant reprint rights for any of their clients without remuneration. I strongly urge that you visit Mr. Rosing's website — (www.rosing.de/index_e.html) and also look for specific photos of the polar buddies on http://speakingoffaith.publicradio.org/programs/play/audiogallery/soundseen.shtml ❑

Traveling Independently in Northern North America, Part 2: Winter

Article and photos by Robert Würtenberger

In an earlier issue I chronicled visiting North America in 2007 following a flexible itinerary (*The Polar Times* July 2008: 30-32). The rewards of travelling independently ("off the beaten track") outweighed the disadvantages and uncertainties sufficiently that I decided to try the adventure again.

Several hosts in 2007 recommended seeing their part of the world in winter next time I visited, so by January 2008, I had decided to experiment with traveling during the boreal winter, between January and April 2009. Three months of independent travel proved barely sufficient for reaching my highlight destinations, given delays and unplanned detours that a solo tourist encounters. Accordingly, I scraped together several months' freedom to travel, by hoarding a whole year's vacation time through 2008 and adding it to paid leave that would be due me in 2009.

Musher in Open North American Sled Dog Championship, Fairbanks, Alaska

My major means of overland travel would be a travel voucher for unlimited miles by CanRail Pass from VIA-Rail through Canada for the duration of my stay in that country. To make up for running out of time before reaching the east coast of Canada in 2007, I intended to start my 2009 trip in Newfoundland, and to proceed westward mainly by train, until I was due to fly to Alaska, but otherwise to keep my options open again, or to "play it by ear."

My first shock was the jump in costs of international air travel. Early 2009 was the middle of the global monetary crisis and increased fuel prices. Reaching Newfoundland was an added expense because St. Johns is no longer a destination for trans-Atlantic flights.

Map courtesy of Dave Norton

Flights and surface travel, North America, Jan-April 2009.

A second shock was discovering that my travel had been booked to St. John, New Brunswick by mistake, instead of to St. Johns, Newfoundland. With penalties for late rebooking, I endured more expense, but still was stuck in Halifax, Nova Scotia for the first night of my vacation. I had worried about my tolerance for Canadian winter conditions, but snowy Halifax at – 8 ° C (+ 18 ° F) felt mild compared to the – 20 ° C (- 4 ° F) chill I had left behind in Frankfurt.

Things started looking up after I reached St. Johns. Pleasant roommates there made up for the ordeals during previous days. From St. Johns I was soon off to the Marble Mountains and Gros Morne National Park (a UNESCO World Heritage Site in western central Newfoundland) to go skiing and snowshoeing. There, over a few days, sun, rain and heavy snowfall comprised a daunting range of weather conditions. With good clothes and equipment, though, I found it easy to stay comfortable.

The next leg of my journey was by ferry to the mainland, and by train to Québec City. Winter Carnival is a famous event in this French-speaking city. Carnival, the language, and the way people interact made a European like me feel at home. Québec exposed me to the lowest temperatures of my trip (- 28 ° C, or about – 18 ° F) but the dry air made it quite tolerable.

The biggest French Canadian city, Montréal, was my next stop. Although I enjoyed watching a hockey game there between the Montréal Canadiens and the Pittsburgh Penguins, I found myself missing the charms of Québec City. Montréal also reminded me that I had not enjoyed my time in the vast city of Toronto in 2007. North America's smaller communities and wilder places were invariably more appealing.

Chateau Frontenac, Québec City

Slope Mountain and Dalton Highway

This con-

clusion helped me decide on the spur of the moment to leave Montréal in favour of visiting Mont Tremblant, a winter resort town, a few hours by bus north of Montréal. Winter sports are featured in this small community. I hooked up with a guide experienced in snowshoeing, who made sure that I was well prepared to take fullest advantage of Mont Tremblant's snowshoeing trails.

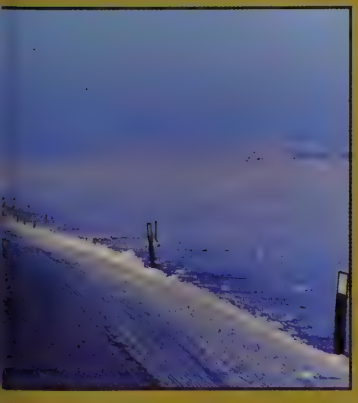
To catch the westbound train, "the Canadian," I had to backtrack through Montréal. A friend had recommended that I stay in a hostel in "old Montréal." I could have lingered there, but dreary rain, the fact that many places of interest in the city were closed, and recommendations by people I met made me restless to push on westward to Ottawa.

In Ottawa, on another friend's recommendation, I had booked a stay at the Ottawa Jail—a hostel that really was once a jail—but on arrival, I found that it had been overbooked. Luckily, I found a room at another hostel within walking distance. Rain and temperatures above freezing persisted, so I soon sought escape by revisiting Niagara Falls, which I had found so photogenic in 2007. There, the rain intensified to a downpour.

Soon enough, the urge to travel westward took hold again, so I resolved to wait for sunny weather in Winnipeg with friends I had made along the way. As soon as good weather coincided with one of the westbound trains for which my CanRail Pass was valid, I could head west from Winnipeg.

To get from Niagara Falls to Winnipeg, I had to pass through Toronto to catch "the Canadian" at its point of origin. Fortunately, schedules meshed smoothly, so that I boarded this train the same day that I left Niagara Falls.

I reached Winnipeg, the capital of Manitoba in comfort, having been accommodated in first-class seating (by mistake). There, friends had invited me to stay in their house, but unfortunately, one was ill when I got there. Their hospitality was thus limited to supplying me with information and recommendations about the area around



laska's North Slope at dusk

Ice sculpture entry in World Ice Carving Championshp, Fairbanks

Winnipeg. While there, I was relieved to be back in snowy, cold weather, quite tolerable compared to the rain I had been fleeing.

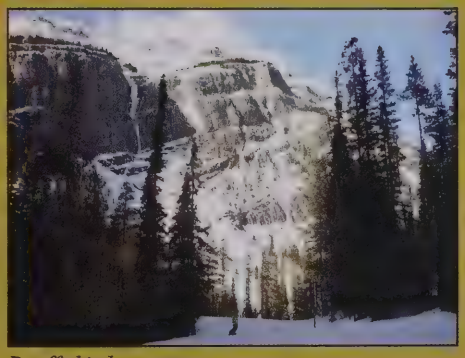
Heading west from Winnipeg, I made a friend with whom I shared a cab to a youth hostel in Edmonton. There, I had intended to buy a ticket to watch the hockey game between the Edmonton Oilers and the Calgary Flames. When I saw the prices being charged for tickets, I elected the cheaper alternative of watching the game by television from a sports bar. The Oilers lost.

Friends from Lethbridge, Alberta, showed me how Canadian paramedics work. As a paramedic in Germany, I found this experience quite instructive. I also got to visit rail yards of the Canadian Pacific Railway. About the only fun thing we did not manage to do together was to watch an NHL game at which my friends could have cheered for the Calgary Flames while I cheered for the Edmonton Oilers.

The expiry date of my train ticket, the CanRail Pass, and the weather forecast for snow, induced me take a Greyhound bus to Banff. This typical tourist town was nice for skiing but also expensive. Again warm temperatures overtook me, so as Banff thawed and the weather forecasts predicted more unseasonable warmth, I fled westward again to the small town of Golden, British Columbia.

In Golden I was reunited with glorious wintry weather and a white landscape. Here I made the first snowmobile trip of my life, after being carefully prepared for the adventure by a considerate guide. This was such fun that I tried to extend my stay in Golden. It was disappointing--but hardly surprising--to find that there were no vacancies in the youth hostel. After all, who could resist this wonderful landscape and beautiful winter weather?

On the way to Vancouver by bus we had some close calls with a winter storm. As heavy snow fell, roads were being closed to all traffic in some cases just minutes after we had made it through. After a long ride, I was greeted in Vancouver by a friend who told me that I was just in time for my birthday party. Actually, the big party in Vancouver was a



Banff ski slopes

celebration of St. Patrick's Day, 17th March, which happens to be my birth date. A week-long Celtic Festival provided a welcome new experience on my travels, and it was pleasant to stay longer than I had planned.

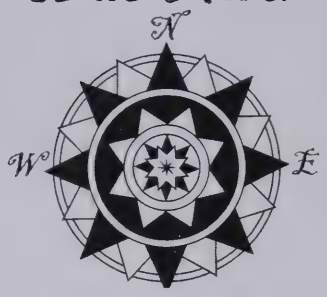
After this special Irish holiday, it was time to fly to Alaska. Over breakfast before leaving Vancouver, I chanced to be talking with my German coworker's brother. He had just purchased a ticket to fly back to Europe. His ticket cost him considerably less than I had to pay for flights to and from Alaska, the 49th of the 50 United States.

To reach Fairbanks from Vancouver, BC, I had to pass through Seattle, then

CONTINUED ON PAGE 25

Niagara Falls illuminated at dusk

Due North



by Arctic Editors
Herbert R. Drury and Moki Kokoris

Moki: In a world saturated with sad news of oil spills and wars and impacts of climate change, allow me to offer you some levity for balance and temporary distraction. I seek it myself, and for me, most of it comes from the mouths (and minds) of babes – namely the young students to whom I give my polar presentations. The primary objective of my gigs is, of course, to impart as much knowledge as I can about the polar regions, but I strive to do so with humor and a "hands on = minds on" approach. In addition to the artifacts (or Arcticfacts as I refer to them) for the show-and-tell effect, I include anecdotal stories to pique the students' interest and to keep their polar lightbulbs blinking brightly for long after I have departed the classroom. It is those stories that the children respond to and remember best. The fun trivia I mention elicit the most amusing comments and queries from my audience. Kids never cease to astonish me with their innocent outside-the-box thinking. Many of them also send me letters afterwards, and it is in their words that I find joy and the motivation to continue doing what I do.

Some of the peripheral vignettes with which I pepper my talks are human interest stories with indigenous roots, others describe artistic endeavors on the Arctic ice, a few refer to scientific topics about natural polar phenomena, and some are just plain fun for comic relief.

So, in much the same fashion, I will share some of my classroom stories with you.

While showing a 5th grade class the difference in size between a real lion skull and one from a polar bear, a boy remarked, "Wow, since the polar bear is the largest land carnivore, I think we need to invent a new word for how big its head is. I would call it enormogiantest!" Then another boy raised his hand to ask, "Did you ever get attacked by a polar bear on your expeditions in the Arctic?" Before I could answer, the first boy, while rolling his eyes, piped back in, "Of course she wasn't attacked by a polar bear, you dork! Look at that skull! If she had, she wouldn't be here talking to us now, would she?"

Then there are the questions and various ponderables - some adorable, some truly funny, and some so profound that they are genuinely tough to answer: "You must be very brave to stand on the Arctic ice when it's only a few feet thick. Are there special vitamins for that?" "Do you have to go to a special school to be a polar explorer, and how much does it cost in case I want to do that, too?" "Thanks for telling us about sun dogs and how they make triple suns, but what if you're standing in front of one; do you get triple shadows?" "Why do people have to take over polar bear territory when the bears were there first?"

Among the touchy-feely things I bring for the students to hold and study are pairs of caribou/reindeer antlers from three different regions of the Arctic. The point of that is to show that "you are what you eat." The richness of the Alaskan tundra makes caribou antlers very large and almost too heavy for some children to lift, while on Svalbard, with only lichen to scrape off the rocks, reindeer antlers are very small. In this collection is also one antler with its velvet still on, which I give an explanation for. One girl raised her hand to make a statement: "I love reindeer because I love Christmas. It's neat that antlers have fuzzy velvet when they grow. But I'm very glad it falls off because it's probably not very aerodynamic."

Kids never cease to astonish me with their innocent outside-the-box thinking.

After showing slides of scientists drilling and studying ice cores, one young man chimed out, taking great pains to be perfectly clear: "That is so cool! Like really cool, as in cold. I think I want to be an *ice* scientist when I grow up. Not a *nice* scientist, but an *ice* scientist. No wait. Maybe I should try to be a *nice ice* scientist."

During one talk, I explained that most buildings — including hotels — in Longyearbyen, Svalbard, have large vestibules with benches along the walls and shelves above them with numerous pairs of slippers for public use, and that people come in, and sit down to exchange their snowy boots for a pair of slippers to wear while indoors. One young man found this habit to be quite mystifying, and asked, "I'm not asking for myself, but I know my mom would want to know. What if someone has athlete's foot? And what if your feet are extra stinky? If I ever go to Svalbard, I'm bringing my own slippers!" Sometimes it is very difficult not to burst out laughing!

And then we have the budding genius types who literally stun me with their questions. In my presentation, I talk about world time zones, explaining that if I am standing at the 90-degree North point, I could enter any time zone I wish by simply taking one step in any given direction. Then I share with the children that I traveled to the North Pole with the first team ever to run a marathon around the North Pole, and that I suggested they run the 26.2 miles counterclockwise through the time zones so that they could finish one day before they started. Naturally, this is theoretical, but the students always find the concept of finishing the race a day younger utterly fascinating. One girl posed a question I never would have thought of myself. She started out with: "What if you're a man..." (beads of sweat immediately appeared on my forehead as she continued) "...and what if you're running around the pole clockwise instead? If you made ten full circles, would you cross the finish line with a beard?" In her mind, if you could reverse time, you could also allegedly do the opposite. We may have ourselves a future Nobel laureate for Physics here!

I will end with one of my favorite excerpts from a letter that one of the youngsters mailed to me. In the classroom, I had asked a trick question; "Why don't polar bears eat penguins?" The humorous responses aside, this is what the child wrote: "Thank you so much for coming to my school yesterday and for teaching us about polar stuff. I learned a lot. When my family was eating dinner last night, I asked my mommy and daddy the same question about why polar bears don't eat penguins. Mommy didn't know the answer, and daddy knew the wrong answer, and after I told them the real answer, mommy and daddy had a fight, and daddy had to go sleep in the basement."

I have only one word in response to that: OVERSHARING! ❑

Herb: This column may be labeled "Due North" but it needs to go in all directions in order to see the comprehensive effects of current activities and environmental trends, some of which may even occur below the equator. As I've said in the

past, there is so much information available these days that one could fill entire issues of *The Polar Times* with "all the stuff you never wanted to know about the Arctic." Even so, here goes, a sampler of contemporary events impacting directly or indirectly upon Arctic and sub-Arctic areas.

The big thing now and into the foreseeable future is climate change and global warming.

Ocean currents affect the Arctic, Icelandic and Greenland currents and have far reaching effects on land masses even in the southern hemisphere especially if there are shifts in direction, intensity, acidity or other such influences which are being uncovered and documented on a daily basis.

There are a growing number of research and development projects around the world related to marine environments and energy alternatives. European nations are working on at least three forms of wave-produced energy and offshore wind farms are expanding in both the U.S. and U. K.

Ice continues to melt at unprecedented rates as documented by satellites, scientists in kayaks on glacial melt streams in Greenland and from new systems employed by research vessels operating in northern seas.

Polar bear numbers continue to decline. One study asserts a 30 percent drop in the past 45 years with an estimate of 600 legal kills and 700 illegal per annum. Couple this depredation with the radical change in polar bear feeding and migration patterns as they follow seals and walruses further out to sea to find ice upon which to feed and rest and you have reason to fear the possibility of extinction for this iconic species.

> *Polar bear numbers continue to decline ... in part because of of 600 legal and 700 illegal kills per annum.*

The conference on climate change held in Copenhagen Denmark closed with disappointing results as predicted by some and feared by many. Bickering, finger pointing and charges of "unfair taxing" dominated the meeting. Last minute efforts did produce some voluntary guidelines to achieve limitations on the rate of temperature increase to no more than two degrees Celsius by 2050 and sums of money to realize this goal were bandied about from $30 billion to an annual rate of $100 billion by 2020 onward. No enforcement protocols or hard financial commitments were made.

Weather problems everywhere: early thaws in northern Canada resulted in premature closing of some winter roads necessitating airlifts to many Manitoba towns above Winnipeg where average temperatures were 4 to 9 degrees Celsius above normal.

Unusually cold weather in parts of northern and southern Europe, southeast U.S. and China and heat waves in Brazil and Australia — go figure!

Pine beetles are killing so many trees in British Columbia that the dying forests are emitting more carbon than man-made sources in the province.

In England, Arctic influenced weather has purportedly effected coastal sea life resulting in more jellyfish, petrels and sharks in the area.

An NSF study conducted by the University of Michigan affords a method of tracking various forms of airborne mercury compounds that end up in northern snow and ice. These compounds originate from incinerators, coal burning power plants and chlorine producing plants. One of the authors of this study is our own APS Secretary Kevin Bjella of the Army's CRREL located in Alaska.

The list of afflictions impacting the Arctic seems endless, and I'm sure by next issue of *The Polar Times* I could make a similar report without repeating a topic cited herein. I won't, but the problems north are beginning to avalanche even as national attention is focused on the Gulf of Mexico oil spill catastrophe. Some of our scientists claim we have reached the mystical tipping point in Arctic environs. Maybe, but if not, certainly soon! ❑

"Traveling Independently" continued from page 23

Anchorage. Interior and northern Alaska held out the promise of unmistakably wintry conditions for the finale of my travels.

My second extended stay in Fairbanks within two years included several highlights: living in a log cabin, watching sled-dog races, visiting an international ice sculpture competition, and driving a snowmobile for the second time in my life. Each offered picture-taking opportunities. While on a short snow-machine trip near the cabin where I stayed, I came face to face with a moose, but could not get my camera adjusted before the animal strode off into the woods.

As I had done in August 2007, I made a side trip, from Fairbanks to the Arctic coast of Alaska. Carlile Trucking Company allowed me to ride along with my friend Dave, the driver of a tractor-trailer rig (this time I promised I would acknowledge his name in print). Instead of the autumn tundra colours of August 2007, we made the 2-day round trip through snow-covered landscapes of late March between Fairbanks and Prudhoe Bay.

After returning from Prudhoe Bay I developed an eye infection. A visit to the doctor and his prescription for antibiotics fixed me up for the flight home. But this important appointment made me miss a meeting with friends.

The series of flights back to Germany was complicated by the volcanic eruption of Mount St. Augustine in south-central Alaska. After passing through security screening in the Fairbanks International Airport, we passengers had a tense wait to see whether our airplane would be allowed to depart for Seattle. Luckily, southbound planes were allowed to fly, whereas northbound flights to Alaska were canceled. From Fairbanks, my final two stops before flying over the top of the world were Seattle and San Francisco. These layovers and connections proved uneventful compared to my weeks of adventures.

Conclusions:

- Many things don't work out as hoped, but independent traveling is still richly rewarding;
- Interesting people are to be found everywhere in the world;
- Québec City maintains its European flavour far from Europe;
- Language barriers don't prevent you from making friends, but a common language like English helps form friendships;
- To take advantage of special opportunities, the independent traveler needs to stay alert, well informed and well prepared;
- Medical services are comparable in North America and Europe;
- The education and training for paramedics and rescue teams are a mixture of similarities and differences between North America and Europe;
- I survived, so winter in northern North America is not too cold for visitors from southern Germany. On the other hand, severe winter weather does pose risks.

I send best wishes especially to friends I made in St. Johns, Québec, Winnipeg, Lethbridge and Fairbanks, and to memorable traveling companions from Australia and Russia. ❑

BOOK REVIEWS

Beneath Falkland Island Waters

by David Enyon
South Atlantic Publications,
ISBN 9780956391209,
Softback, 198pp, £19.95

Reviewed by Charles Lagerbom

Beneath Falkland Island Waters by David Enyon is an incredibly engaging examination of marine life, shipwrecks and diving possibilities in and around the Falkland Islands. With all text and most photographs taken by the author, this wonderful book of almost forty years in the making appears to have been a true labor of love. According to Enyon, this remote diving destination is both magnificent and pristine. Known for its rich maritime heritage, the Falkland Islands have long been involved with ships rounding Cape Horn and battling the far south Atlantic. As a result, its waters offer some of the best cold-water wreck diving in South America.

Using most recent charts, the author provides a section-by-section circumnavigation review of the rugged coastline of the islands in a methodical and informative format. Concise descriptions of numbered sites also include helpful hints and first hand heads-up information of what to expect, see or avoid. Not content to be just a wreck guide, however, the book also lavishly presents the plethora of spectacular marine flora encountered beneath Falkland waters.

Enyon states that his book is just a summary of sites to be visited in the Falklands and leaves it up to future divers and enthusiasts to expand upon his record. With the colorful photos, engaging text and fascinating information, this book makes one want to grab their gear and head south. Even if one is not a diver, this book is an excellent source of information on the maritime heritage of the islands and its numerous wrecks. It is available through South Atlantic Publications. ❑

On Sea Ice

By W. F. Weeks
University of Alaska Press, Fairbanks, Alaska

Reviewed by Cliff Bekkedahl

OMG ! When the postman handed me the package, I thought someone had enrolled me in the Brick of the Month Club. On opening, I found instead a weighty tome (yuk, a "text book!") and indeed it was, but also more, delightfully more. For here was a spanking new standard, a classification that many an author strives for but only a rare few attain. All you PhD candidates and anxious associate professors looking for a breakout subject, look elsewhere for your thesis or text book topic, cuz Willy Weeks owns sea ice, and he has left little to nothing unsaid! Well, maybe someone can offer a word or two on bergy bits and some musing on slush, but no contest! With *On Sea Ice*, Willie Weeks rules!

Having just attended the APS 12-14 May Symposium at the University of Colorado, Boulder, I instantly thought of all the members of INSTAAR, NSIDC, NSF, CRREL, and all the Polar Studies Departments in academia here and abroad, who should, indeed must, lay hands on this authoritative and comprehensive lifetime achievement of Professor Weeks. Those who teach will markedly enhance their curriculum; those who work in polar reaches will better understand the environment in which they labor; and those whose polar days are past can just kick back and enjoy this splendid presentation of all there is to know about the ever-present, ever-changing nature of sea ice.

Many an author exhibits command of a subject, but only a rare few reveal it with such an engaging writing style as has Professor Weeks. He eases you through a great deal of complex scientific material that encompasses the life cycle of sea ice, and I presume that when wearing his "Willie" hat, the professor would forgive most readers, except perhaps students, for page-flipping past the bulk of equations, formulas and graphs that underpin the science of sea ice. I say this because the author himself makes every effort to leaven his topics with gentle wit, learned quotes from fields afar, and unpretentious discussion of his research and field experience spanning the past five decades.

A generation or two ago the publisher might well have insisted that the title of this book be "The Romance of Sea Ice," for, indeed, *On Sea Ice* goes far beyond a treatise or exposition of a physical phenomenon. It's a lifetime love affair revealed, and the reader is not only informed but also elevated by sharing the author's intellectual commitment to this important dimension of the polar environment.

On Sea Ice belongs in every professional library, and I for one will keep it close at hand. I know that eventually one of my grandchildren, seeking to curry favor with the patriarch, will ask me how he or she might determine the conductive heat flux through sea ice. I will point to the doorstop and say, "It's all there, kid. Go for it." Thank you, Professor Weeks. ❑

Thule Explorer, Kayaking North of 77 Degrees

by Rosemary Clewes. Hidden Brook Press, 2008. Richard M. Grove/Tai-Publisher, 109 Bayshore Rd., R.R. #4, Brighton, Ontario, Canada KOK1HO, ISBN: 978 1 897475 05 8

Reviewed by Herbert R. Drury

Here is a truly different little paperback, measuring only six by nine inches and perhaps a quarter inch in thickness. If you like poetry as well as polar adventures, I believe you will enjoy this small but interesting volume. The author is a well-travelled Canadian lady with extensive arctic experience whose verse has been copiously published and rewarded in her home country, but this is her first book. It combines colorful prose with her own unique style of poetry. I have never been a big one for poetic writing, so probably am not the best person to evaluate her work. But I can say that readers will find here an enthusiastic mix of descriptive language about a modern sea kayaking adventure well embellished with poetic verse that speaks without rhyming. My own training in that type of English composition is now far too distant to allow me to put a name to her style or form.

When I was in Thule, Greenland in 1952, the U.S. Air Force was still building a defensive base there with Denmark on the northwest coast beside Mount Dundas, Walstenholm Fjord, and Northstar Bay for America's answer to the Russian 'Cold War'. There was a small Eskimo village nearby that Knud Rassmussen, the Danish explorer had established in the early 1900's. Some of us working for the U.S. Weather Bureau were lucky enough to be taken across the bay to visit it by Count Eigil Knuth, another Danish explorer active in that area and time. There we saw and photographed both natives and 'Greenlanders' (Danish-Eskimo mixed breeds) at the village market, one of several wooden buildings in the settlement. Some wore polar bear skin trousers and sealskin boots, while others sported gaudy cloth dresses and coats from material imported by the store from Denmark, the owner of Greenland. The area was off-limits to all other personnel. Soon after that, apparently the entire village was moved some distance north to its current location at Qaanaaq on Inglefield Fjord, the most northerly community in the world, where this story takes place.

That same summer of 1952 some of us were taken by U.S. Navy ships over to Resolute Bay on Canada's Cornwallis Island, one of several joint U.S.-Canadian weather station/airfields, much smaller than Thule, but also part of the Cold War defenses of America and its allies in the 1950's. There were no inhabitants there at that time other than U.S. and Canadian government personnel. But a year later, the Canadian authorities moved a selection of Eskimos from further south up to Resolute and literally dumped them near the air base, again "off-limits", and with little of their normal gear or necessary equipment. This became a sad tale of beaurocrastic dysfunction which Clewes tells as part of her story while en route to Greenland and back. Unfortunately, for me at least, neither of these episodes in native history is as fully documented as I would have liked. But from what she does say, it appears that the 'new Thule' (Qaanaaq) is a fairly modern Danish-Greenlandic town, much like those elsewhere on the island, with most of the same benefits and problems. Resolute has been designated more recently as a military base to support Canada's claims to her Arctic lands and waters now that the Northwest Passage region appears to be opening up for possible trade and mineral exploitation due to global warming.

The adventurous author then takes us on a nearly two week kayak trip, with a small group of others, circling a major part of Inglefield Fjord, led by contemporary guides, occasionally within sight of the town. Some of this is eloquently described in her passionate prose, and much of it is supplemented with her stylish brand of verse. She shares with her readers the emotions, thrills, and excitement of camping out above 77 degrees North latitude, and paddling for lengthy periods through sea ice, hiking on strange, remote lands, and exploring some of Greenland's extensive glaciers. She treats us to the rare sight of local Inuit Eskimos Narwahl hunting in the same bay. Also included are poetic references to some of the common wildlife, though no terrifying battles with big game animals or such occurred that close to 'civilization' and native hunters. The author cites a number of references to Knud Rassmussen, Peter Freuchen, Barry Lopez, author of "Arctic Dreams" which I am still reading, and others involved in Arctic exploration or development, all of which add to the interest of this publication. There is one helpful map of the fjord area that shows some of the locations mentioned in the text, but none of the campsites are shown, nor the route of the group, and several of the glaciers or other places she discusses. Sadly, there are no other illustrations or photographs to complement this rare presentation.

I found Rosemary Clewes' timely treatise to be a delightful diversion into a different sort of adventure than most of us will ever experience. It is replete with personal emotions and insights into her reactions to many of the new or unfamiliar stimuli she realized on this unusual little expedition. Readers will find a thoughtful discourse on her inner feelings almost as much as her extensive descriptions of scenery or events encountered with her small band of "modern day explorers." ❑

Physics for Future Presidents

by Richard A. Muller
W.W. Norton & Company, Inc.
New York, New York 10110

Reviewed by Cliff Bekkedahl

An off-putting title for Polar readers? Perhaps. But life is full of surprises, and anyone who takes this reviewer's advice and lays hands on a copy of *Physics for Future Presidents* is in for a pleasant and informative read.

Richard A. Muller is a professor of physics at the University of California, Berkeley, and a past winner of the MacArthur Fellowship, which many of you know is often referred to as the "Genius Award. The book is based on his renowned course for non-science students. Indeed, Professor Muller takes pains at the outset to assure readers that all the graphs, equations and mathematical formulas that pepper the writings of his peers have been left on the editor's floor. Applying straightforward language, he addresses the issues that make the headlines with the science we may have learned long ago and offers to the sitting and future presidents the scientific fundamentals required to understand the dangers confronting the nation and world and how science can inform policies designed to manage these thorny issues.

Professor Muller clearly envisions any U.S. President as a teacher and communicator, guiding the people to a better understanding through science of the major issues we will face in the foreseeable future.

He leads with the topic of terrorism, 9/11 and what brought the Twin Towers down. He next discusses the ever-present fear of a terrorist nuclear attack and the many misconceptions that muddy understanding of the risk and likelihood of such an event. And he offers his estimate of the nature of future terrorist attacks in the western world –aircraft as bombs, biochemical agents, releasing natural piped-in gas in large buildings and more.

Moving into areas of immediate interest to most *The Polar Times* readers, Professor Muller devotes a large portion of his book to global warming, at times debunking some of the lurid myths and hyperbole that clutter the landscape. But overall, he produces a sobering appraisal of the issues and possible solutions or mitigating measures that future presidents will have to consider and reconsider many times over in the decades ahead.

Yes, this is a bit of a refresher in basic physics and earth sciences, but the correlation with the life-threatening issues of our times and those of our grandchildren, that cannot be wished away, makes this book an important contribution, especially if it were to reach the intended audience—the President and his successors.

I know sleep would come more easily to me if I knew the White House incumbent had a dog-eared copy of this book on his or her nightstand. ❑

The Man Who Ate His Boots : The Tragic History of the Search for the Northwest Passage

by Anthony Brandt, Alfred A. Knopf, 2010.

Reviewed by Herbert R. Drury

The Man Who Ate his Boots is a brand new, absolutely fascinating book on an old subject, presented by a very knowledgeable and expert writer. Anthony Brandt has chosen the last ill-fated expedition of Sir John Franklin to arctic Canada from 1845 to 1848 as the basis of this monumental story. He has well-researched and described almost all the expeditions leading up to the disturbing disappearance of two English vessels and 129 brave men, and the ensuing attempts to find them, all largely as part of the ambitions of one Admiralty Secretary and the second wife of Captain Franklin. The efforts of British seamen, encouraged by a nation obsessed with becoming the world leader in marine exploration, resulted in the discovery of the long-sought "Northwest Passage" through the maze of ice-clogged islands of northern Canada in the era before human flight.

As the author so eloquently shows, the mood in England, as well as among several other nations at the time, was such that great effort and expense on that kind of noble enterprise was not only desirable but it kept some seamen and their idle ships purposely occupied between wars when they would otherwise have languished uselessly at half pay. Apparently, in those days English sailors were retained as sort of 'reserves' for extensive lengths of time. The period from 1818 to 1880, during which the famed "passage" was finally discovered, is well documented in this awesome tale. Unfortunately the true nature of the several routes possible was not fully known until many decades later, and it is only in the past few years, thanks largely to rapid melting of arctic ice, that vessels of various types and sizes, have actually crossed in both directions above the Canadian mainland separating the world's two largest oceans. And even today, the usefulness or practicality of any of these routes is still in question though recent so-called "global warming" seems to indicate otherwise. Arctic nations are showing increased interest in the area and its potential for reduced travel time between continents, while other natural resources appear to gradually be coming available for possible utilization, sooner rather than later. So this literary addition is most timely, indeed.

Although Brandt's discourse mostly concerns naval expeditions to North America, he does include some of the early overland routes explored by English and other adventurers. The pioneering enterprises of the Hudson's Bay Company and its rival North West Company had opened up much of the Canadian mainland to fur trading among many widely scattered outposts and forts. But almost no 'white man' was known to have set foot on the arctic coast of that nation. Native Eskimos and Indians knew and worked the area somewhat, but only Samuel Hearne and Alexander MacKenzie had actually explored that region in the 1700's, and no one else had apparently journeyed there since. Having been through or over parts of this enormous, bug-infested, frozen 'barren land' myself on two 1950's expeditions, I was particularly enthralled by the accounts in this book of both Sir John Franklin's first two traumatic explorations of this remote, partially forested land, mostly by water, and that of George Back down his 'Great Fish River' to the Arctic Ocean. I could only wish that more information on Hearne and MacKenzie's travels were included, but they were out of the era that Mr. Brandt has chosen to elucidate.

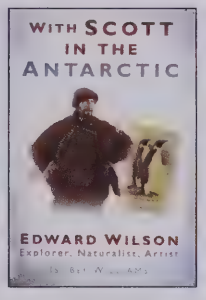
He tells us a great deal about political and social conditions of that time in Europe and elsewhere which helps explain the land and sea searches in Canada. The author also goes to considerable lengths to document other journeys of John Franklin, his second wife Jane, and details about John Barrow, among others, who were involved in this effort. These digressions do help us to understand the reasoning behind sending so many ships, men, and explorers to Canada, but personally I would have preferred to hear more about some of the expeditions that he describes only superficially. There were so many attempts over the years that one is hard-pressed to keep them all straight, even though Brandt lists each one in the beginning with a brief overview.

Most of the many famous people and the events involved in these arduous and dangerous missions are carefully described based upon personal books or accounts as well as those of others at the time, all of which make for exciting reading. Several maps are spaced throughout the book, and they include many, but not all, the locations mentioned in the text. A listing of the maps and their locations would have been helpful, though I was able to find most of the places by repeated references to the different maps. Use of modern Arctic maps confirmed some of the missing sites for me, but not always very easily. Anthony Brandt has investigated a huge number of sources and original documents for this extremely interesting history, and they are listed by chapter at the end with helpful annotations. These references have allowed him to tell in considerable detail the stories, adventures, discoveries, life and deaths of several more important expeditions, plus somewhat more limited accounts of numerous others. He has done a marvelous job of of presenting a rather complicated series of events in a way that makes his readers understand the process and reasoning involved while still holding our interest in very readable and often thrilling tales. Certainly, no one after reading this wonderful work will ever say that "history is dull!" ❑

With Scott in the Antarctic: Edward Wilson, Explorer, Naturalist, Artist

by Isobel Williams
(The History Press, 2008, 320pp, £20)

Reviewed by Jeff Rubin



When author Isobel Williams was a junior doctor at St. George's Hospital in London, where Edward Wilson had also been a student, she was intrigued both by his medical illustrations and his dramatic landscapes of Antarctica that she saw in the hospital's common room. She retained her admiration for Wilson throughout her career in respiratory medicine, and upon retirement, began researching his life in depth. Williams' book is the happy result of her longstanding interest added to the insight gained from her own medical career.

With Scott is an engaging account of the life of this most interesting polar "second," a man much better-loved by his fellow expeditioners than was the leader they all served, Robert Scott. We learn a great deal about Wilson's early life, his medical studies, his work outside polar exploration.

Much that is new comes from Williams' study of Wilson's health history, a topic she explored in a paper for *Polar Record* in 2008, "Edward Wilson: medical aspects of his life and career." Not only did Wilson suffer from the conditions he encountered on his polar journeys: altitude sickness, dehydration, hypothermia, malnutrition and vitamin deficiency; he also had two potentially-fatal episodes: tuberculosis, which prevented him from pursuing his ambition of becoming a surgeon, and an anaphylactic reaction to a wasp sting.

The sections of the book dealing with the *Discovery* and *Terra Nova* expeditions, probably of the greatest interest to most readers of this review, cover little new ground—but then there is probably little about those fabled expeditions that remains to be uncovered. Using primary and secondary sources, Williams tells the stories ably, injecting her medical knowledge where ap-

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"Book Reviews" continued from page 27

propriate, as in a detailed discussion of Edgar Evans' collapse and death, along with the symptoms experienced by his failing companions on their ghastly return march from the Pole.

Unfortunately, this book suffers from an ailment all too common in publishing today: the lack of a copyeditor (or even a spell-checking program). Thus we have Scott's *Discovery* crossing the Antarctic Circle in 2004; "principle" used when "principal" is meant; "poisening," "eek it out," "batchelor," "treck," etc. Williams acknowledges the many medical colleagues who commented on parts of her manuscript, but it would also have benefited from a reading by someone familiar with polar regions. Names like Macquire [sic] Island, Barnacchi [sic], Wilde [sic] and finesco [sic] are regularly mangled. Adélie penguins are consistently called Adéle penguins. Other mistakes could also have been easily corrected: the Barrier (Ross Ice Shelf) is not "sea ice," ships are not "boats," Ross Island does not experience an "Arctic summer," and emperor eggs do not incubate at "a steady 35°F."

One aspect of Wilson's life and work that could profitably have been examined further is his artistic production and methods, though clearly that is not Williams' special expertise. To this reviewer, it is an obvious and fascinating area yet to be examined in depth. Art historians to date have found Wilson's work unworthy of their scholarly purview, but that may be changing. At Brantwood, the museum home of English art critic and essayist John Ruskin, an exhibition of Wilson's works titled "A Terrible Beauty" was on view from 12 March to 30 May 2010. Someday, a fully-illustrated catalogue of Wilson's works will be published, bringing much wider recognition to his considerable artistic talents, often exercised under conditions that would have prevented most artists from producing anything at all! ❑

The Shackleton Letters: Behind the Scenes of the *Nimrod* Expedition

by Regina W. Daly
(The Erskine Press, 2009, 360pp, £27.50)

Reviewed by Jeff Rubin

"More than kisses," wrote the poet John Donne, "letters mingle souls; for, thus friends absent speak." This is part of the semi-illicit pleasure of reading other people's mail: we are privileged to share in private observations, plans, thoughts and feelings unobtainable in any other way. When the writers and recipients are well-known persons, the sense of participating in the making of history further heightens our enjoyment.

Regina Daly has collected 165 letters and telegrams between Shackleton, Scott, Mawson, Edward Wilson, the Royal Geographical Society and several others; also included are Shackleton's intimate letters to his wife, Emily, and to Elspeth Beardmore, with whom he was evidently very close.

These letters concern Shackleton's 1908-09 *Nimrod* expedition, his greatest triumph, for which he was knighted: he and three companions pioneered the route up to the polar plateau via the Beardmore Glacier and reached to within 180km of the Pole, beating Scott's furthest south by 590km, discovering almost 800km of new mountains, and showing the way to anyone who would follow.

The crux of the planning for the expedition—and the "meat" of this book—was Shackleton's belated discovery that Scott was planning to take a second crack at the Pole after the unimpressive showing (82°16' S) that he, Shackleton and Wilson made on the British National Antarctic Expedition in 1901-04.

Although Shackleton had intended to use Scott's old base at Ross Island, Scott wrote to him describing his own plans for another Antarctic expedition and all but insisting that he establish his shore base elsewhere: "you have placed yourself directly in the way of my life's work." Shackleton very reluctantly agreed to set up headquarters elsewhere, but when he arrived at the Ross Ice Shelf in January 1908, he found that the Bay of Whales, where Scott's men from *Discovery* had launched its balloon just six years before, had disappeared. If the great ice shelf had calved, which it had obviously done, then it could do so again, and establishing a base atop it would be a gamble. But *Nimrod* was unable to push further east through heavy pack ice, so Shackleton was forced to use Ross Island as his base, breaking his promise to Scott.

It was, of course, a promise that Shackleton should never have made. Nor should Scott have felt able to demand it. But Scott did, and Shackleton did, and we can read their wary correspondence on the subject—and even see their handwriting, for several sheets are reproduced as photographs. To be sure, this controversy has been thoroughly examined in previous books, and biographers such as Roland Huntford and Beau Riffenburgh have already thoroughly mined these letters. But reading them in their entirety, and in sequence, reveals something more.

One is left with the distinct impression that Shackleton truly knew nothing of Scott's plans, for Scott had repeatedly insisted that his naval career and his need to provide for his family precluded another attempt at the Pole. One is also unable to escape the feeling that Scott was much too ready to assume the worst about people: not only about Shackleton, but also about others, including J. Scott Keltie, secretary of the RGS. Unfortunately, Scott comes across as petty, suspicious and insecure. Wilson's own unforgiving stance regarding the dispute is at first surprising, but clearly he had already decided to throw his whole lot in with Scott, which he did to the very end.

Daly has segregated Shackleton's letters to Emily and to Elspeth in an appendix, a decision whose merits can be debated. But what is certain is the poignancy of his several promises to his long-suffering wife, whom he addressed as 'Sweeteyes,' that this expedition would be his last (there were, in fact, to be two more). He signed his letters to her 'Micky,' and 'your boy Emiky.' His letters to Elspeth, the wife of a principal benefactor, are almost uncomfortably private. If they did not have a physical love affair, Shackleton and Elspeth surely shared a deep companionship that came very close to being disloyal to their spouses. It's embarrassing to read letters written by 'Shackles' to the two women on the same day.

The book includes more than 40 photographs and illustrations and a handsome 440 x 430mm pull-out map of explorations and surveys of the expedition.

Although Shackleton's *Endurance* expedition is much better-known, the letters associated with it are likely to be less interesting, given that its planning was uncontroversial. Nevertheless, such primary documents reveal fascinating details, and thus a companion volume of Shackleton's correspondence associated with the Imperial Trans-Antarctic Expedition (1914–17), perhaps with a small section on his final *Quest* expedition, would be a welcome addition. ❑

Deep Freeze!: A Photographer's Antarctic Odyssey in the Year 1959

by Robert A. McCabe
(International Photography Publishers, 2010, 152pp, $45)

Reviewed by Jeff Rubin

Fifty years ago, in the Antarctic summer of 1959, a twenty-four year old photojournalist on assignment for *New York Sunday Mirror Magazine* visited Antarctica, briefly. In the few weeks he spent there, Robert McCabe stayed at McMurdo, visited Scott's Hut at Cape Evans and Shackleton's at Cape Royds, and accompanied a U.S. Air Force C-124 Globemaster on an airdrop for South Pole station.

Skillfully employing his Rolleiflex and Contax cameras, McCabe captured images from "what already appears to be ancient times in the Antarctic," as he puts it in the "Photographer's Note" ending the volume. In his introduction, Guy Guthridge, longtime manager of the National Science Foundation's "Artists and Writers" Program, refers to the period as "early modern Antarctica."

Very handsomely printed, these photographs—86 in total, all in black and white, many of them spread across two pages—are souvenirs of a more innocent time, before Antarctica had quite so many rules. A wonderful view over McMurdo from Observation Hill shows a station far smaller than the sprawling town that now accommodates more than 1,100 people. We meet a live emperor penguin in the bedroom of a Navy officer, see an Adélie lifted high by a visitor, and read about a penguin found "frozen in a scientific hut" that was carefully wrapped in absorbent cotton, packed in a box and parachuted to "the boys at the Pole Station."

These crisp images—which include some outstanding examples, among them an outdoor portrait of Admiral David Tyree welcoming new visitors to McMurdo, and a double-page shot of a Super Constellation on a sea ice landing strip—are supplemented by notes that McCabe dictated to his portable recorder during his short Antarctic sojourn, giving an appealing immediacy to this record of a period now long gone. ❑

Why we Disagree About Climate Change: Understanding Controversy, Inaction and Opportunity.

by Mike Hulme. 2009. New York NY: Cambridge University Press, xiv + 392 pp., Foreword, Preface, Illus., Biblio, Index. ISBN-13: 9780521727327. Paperbound. $28.99.

Reviewed by Dave Norton

Brought up on social values pre-dating mobile phones and Facebook, I evaluate a book by the extent to which it enhances my imaginary ability to spellbind students or dining companions in face-to-face settings. In the same face-to-face style that citizens of smaller states now grill Alaska residents, and judge them by their regard for Alaska's former governor/U.S. Vice Presidential candidate, lower-latitude folks may interrogate polarphiles of both hemispheres on global change. The iconic

nature of high-latitude climatic phenomena might endow us with geographically privileged insights into the topic of this book. Before reading it, both sorts of interrogation made me cringe to the point of escaping lamely with "Sarah who?" or "what change?"

Think about it: who amongst us escapes constant (pp. 322-325) conflicting news and commentary about climate change? Hulme's book is a disturbing chronicle, a doubter's companion, and contributes to an eventual Rosetta Stone for simultaneous translations of this traffic. Why we Disagree shows us that parties to discussions of climate change often talk past one another. Some disagree needlessly. Others nod heads in unison after falsely assuming that shared beliefs unite a set of discussants.

"Climate" is—has been ever since its first formulation by Parmenides in the 4th century BCE (p. 5)—a fundamentally complex and multidimensional abstraction. It is related to (but is vastly more than) long-term average weather conditions for a given location or region. I help science students distinguish climate from weather with: "Travelers pack for climate but dress for weather," while Hulme expresses the relationship (p. 9) with "Climate is what you expect, weather is what you get."

Alongside its meteorological meaning, "climate" comprises metaphorical and cultural dimensions in post-Enlightenment Western traditions. The thread of the flood myth weaves through early centuries of monotheistic, Abrahamic beliefs of Judaism, Christianity and Islam, while the Nile and history of Egypt illustrate intertwined physical and cultural dimensions of regional climates (p. 12). Historically, climate is used as a vessel for moralizing, hence a carrier for ideologies (p. 32). In 1775, Immanuel Kant proposed that temperate climates favoured intellectual development (p. 19), and in 1776-88 Edward Gibbon interpreted the fall of the Roman Empire as partly mediated by climatic trends. Ellsworth Huntington (1915) articulated a theory of racial hierarchy reflecting climate, thereby drawing fire from discrediters of racist ideologies based on climatic determinism (p. 29; see also "Polar Classic" in *The Polar Times* January 2010:28). Jared Diamond's (2005) Collapse and James Lovelock's writings on Gaia perpetuate the more credible vestiges of determinism (p. 30).

Humanity has long dreaded climatic excursions as degradations of predictable (utopian) lives and livelihood. Deep-seated anxiety may explain the persistence of "climate porn" (BBC, 2006) purveyed by media that sensationalise any instance of extreme weather as the latest pushback by the natural world against our species' wickedness (http://news.bbc.co.uk/2/hi/science/nature/5236482.stm), accessed 29 Oct. 2009). Lest we doubt how profoundly — even subliminally — we react to climate-related news, Hurricane Katrina in 2005 (p. 12-13) reminds us of this reactivity. Many forms of climate news and commentary seem destined to barrage us for years to come. A sample of articles and reviews in *The Polar Times* since 2000 (Spring-Summer 2002: pp. 8-9; Spring-Summer 2004: p. 8; January 2007: pp. 34-35) suggests that rational discourse can avoid sensationalism.

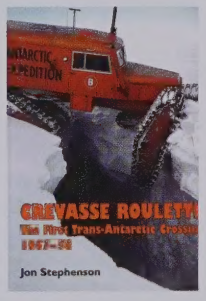
Mike Hulme dedicates this book to his father for teaching him that "disagreeing is a form of learning" (p. x). Ironically, he espouses a definition of "climate change" that restricts the meaning of "change" to that brought about by human agency and equates it to the popular nickname of "global warming" (p. xxxix). Hulme's historical analysis then compounds this irony by portraying science and funding of a broad range of scientific activities related to climatology as having evolved since 1988 to become inadvertently but effectively immunized against dissent (pp. 64-66; 92-95). Dissenters include those who question causality, and those who consciously adhere to agnosticism about causation behind observed changes in climate regimes over geological time scales. They consider many environmental variables (e.g., precipitation, wind velocities, cloud cover, greenhouse gas concentrations, etc.). Collapsing all of them into the single variable of temperature, and doing so for the planet as a whole (see Fig. 1.2, p. 8) makes agnostics uneasy. At best, this is a third-order abstraction (a global abstraction of a temperature abstraction of classical abstractions that use many parameters to define regional climates). At worst, it is a tricky shell game.

The International Panel on Climate Change (IPCC) was initially formed by the World Meteorological Organization (WMO) at the University of East Anglia, then adopted by the United Nations, where it has grown in influence since 1988 (pp. 64; 92-96). IPCC's stature has tracked the slow replacement of nation-states by international bodies as arbiters and decision-makers (p.309). Specifically, the IPCC inherited the widely acclaimed ozone-protective Montreal Protocol of 1987 as a model on which to pattern climate governance (pp. 291-294). Hulme considers this protocol fatally flawed.

How inevitable, then, were twin 2009-2010 failures, IPCC's "Climategate" and the Copenhagen breakdown? Alas, Hulme concludes, the arena in which discourse about climates is conducted currently rests upon a number of pillars of uncertainty. 1. Our multidimensional definition of climates is changing as fast as their physical characteristics (pp. 68-70). 2. Science, its conduct, governance and communication are also changing rapidly (pp. 72-108). 3. The adoption of the 1987 Montreal Protocol framework for the Kyoto Protocol (1997) must wrestle with the problem that general climate governance has proven a murkier and clumsier business (p. 309) than controlling ozone-threatening chemicals. Expect many disagreements in this arena.

This is not an easy book to read. You may find it a worthwhile investment in some measure of haven from conflicting facts and ardently expressed opinions on climate change. ❑

Crevasse Roulette: The First Trans-Antarctic Crossing 1957-58



by Jon Stephenson
(Rosenberg Publishing, 2009, 192pp, $49.95)

Reviewed by Jeff Rubin

Jon Stephenson, a geologist on the expedition, offers an inside view of the Commonwealth Trans-Antarctic Expedition (TAE), which under the leadership of Vivian Fuchs completed the first overland crossing of Antarctica via the South Pole, covering 2,150 miles in 99 days.

One of several impressive things about this volume is the perspective of its author, who writes with the wisdom and maturity of more than half a century after his participation in the remarkable journey. Stephenson is able to point out—gently, it must be said—contradictions, inaccuracies or differences of opinion he has with several of the previously-published accounts of TAE, which he lists in a comprehensive bibliography. He is also able to write self-deprecatingly and honestly about his 50-years-younger self, noting that his inexperience, brashness, naiveté and "erratic" culinary skills occasionally (but only occasionally) got on the nerves of his fellow expedition members, during a winter with two companions at the advance base "South Ice."

Stephenson played an important role on TAE. With Ken Blaiklock, he drove dog teams from "South Ice," located at 81.7°S, all the way to the Pole. They were the first to accomplish the feat since Amundsen's arrival at the Pole in 1912, forty-six years earlier. Mushing to the Pole was to be done just one more time, by Will Steger's International Trans-Antarctica Expedition in 1989-90. No one will ever duplicate such a journey, unless the 1991 provision of the Antarctic Treaty banning dogs from Antarctica is someday overturned.

Working from diary records, Stephenson writes in an engaging style, moving the narrative along while including interesting anecdotes and observations. His description of traditional ship's biscuits, eaten frozen, as being "a bit like a rock wafer" is just right. His explication of what he refers to as "the cause célèbre" (the interaction between Fuchs and Ed Hillary, who famously was tasked only with laying depots from the Ross Sea coast south toward the Pole but ended up driving his Ferguson tractors all the way to 90° South) is fair and balanced, though he is not afraid to point out where he thinks someone—including Hillary—is off the mark in their assessment.

Tellingly, Stephenson reserves his most pointed criticism for Hillary's decision concerning the expedition's 18 dogs, which were flown back to Scott Base from the Pole, while Stephenson and Blaiklock continued the crossing in one of the TAE vehicles: "When they [the dogs] reached Scott Base, Hillary decided either that some were in such bad shape they were not worth saving, or that feeding all of them was beyond the resources of the base. Sadly, he had a number put down. Later, when Ken and I flew to Scott to get seal meat for them for the winter, about a dozen of our 'special friends' were still alive. I am sure every dog would have recovered, given meals of seal meat."

Five appendices cover previous explorers in the Weddell Sea region; the Weddell Sea and its special character; dimensions and construction of three polar ships (*Fram*, *Deutschland*, *Endurance*); other IGY expeditions in the Weddell Sea region; and TAE publications. The fourth appendix includes some interesting material on Argentine explorations from their General Belgrano station, which Stephenson had translated from the original Spanish, and which, he notes, "seem to be largely unknown outside Argentina."

Crevasse Roulette is beautifully illustrated throughout with 71 color and black and white photos, and 41 maps and diagrams. Nearly all of the photos were taken by Stephenson himself using his "faithful Leica 3c camera" and Kodachrome 1 film, and the color remains crisp and saturated these many years later. Several images showing Sno-Cats suspended awkwardly over yawning crevasses (including the dramatic cover shot by George Lowe) leave one wondering: how the hell did they get out of that one? Stephenson helpfully diagrams and describes in detail one such recovery procedure, which required five hours. ❑

Obituaries

Fauno Cordes

San Francisco Chronicle, 10 January 2010— Fauno Lancaster Cordes passed away on Christmas Day in her San Francisco home at the age of 82. Fauno was born in San Francisco to Faun Hope Lancaster and Frederick Carl Cordes, M.D. She graduated from Miss Burke's School, the University of California, and later obtained a Masters degree from San Francisco State University. Her career included technical positions at the City of Hope, Oak Ridge National Laboratory, and the University of California San Francisco. She retired as a nuclear medicine technologist from Mt.

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Editorial: APS Meeting, University of Colorado, May 12–14

Hosted by the Institute of Arctic and Alpine Research-INSTAAR and the National Snow and Ice Data Center (NSIDC), along with the generous support of TRANSPOLAR

The City of Boulder, Colorado, provided a fitting welcome for the American Polar Society, with two to four inches of wet snow and chilly temperatures, but some rain and the sunny day that followed put that behind us.

What was in front of us was two full days of 45- to 60-minute presentations centered around events recent and past in the polar regions of Spaceship Earth. "Good stuff, ay," as our Canadian friends might say and, yes, most of it was. Our presenters performed their duties with diligence, wit and attractive graphics. In his letter on page 2, our president highlights a number of presentations that provided attendees unique perspectives on the rapidly changing polar environment.

All well and good, but somehow, someway an aura of *déjà vu* — been there done that — was an unseen but looming presence in the conference hall.

Let me back up. The meeting was sparsely attended with fifty-two souls on board: 17 APS members-at-large; seven members of the APS Board of Governors; 12 to 14 presenters; and approximately 10 to 12 representatives of companies seeking the NSF management contract for South Pole operations for the next decade. An interesting mix with many a "Howdy" and "I haven't seen you in years," from those who did the science down south and those who supported them.

The low APS member attendance was disturbing, and the reason for it had to be a failure of communications. *The Polar Times* is a twice-a-year offering, and the Society can't rely solely on its members reading and retaining awareness of administrative announcements for events or activities still to come several months down the road or midway between issues.

At the same time, the Society cannot afford to spend a lot of money on letters and /or flyers sent through our postal system to remind and encourage members of an event like the Boulder meeting.

But the instant lesson to be learned is that there have to be alternative measures available to APS leadership so that they can inform, remind and urge members to participate or support Society activities and events. Indeed, I overheard a couple computer savvy members discussing establishment of an email "blast" program wherein all members' email addresses are compiled under a single address, and information can be sent to all hands with one click of a mouse by the secretary, president or membership chairman. Another measure that may be old fashioned but remains effective is to set up a telephone tree wherein designated persons call five other members and those five, in turn, call five other members on their branch of the tree and so on. Clearly we need to do something along these lines.

Whatever the case, poor communications definitely impacted attendance at the Boulder meeting. But what of my comment about *déjà vu* and "been-there-done-that?" Here goes: It's my opinion that the format for the APS bi-annual meeting is tired and outdated. Plain and simple. Maybe, just maybe, members are no longer attracted by another round of what promises to be the same old thing! Add to this the $500 to $600 for airfare and lodging and perhaps "pass" is an understandable reaction.

I suggest it's time for a change. It's time for APS to do something different at the biannual meeting. For example; sponsor a competition among young polar scientists, graduates and undergraduates. Have three finalists present their work at our meeting, and then have APS experts judge and declare a winner and rank the remainder. Present them a cash award at our dinner and — oh yes — get them to become members of APS.

Certainly there would still be time on the agenda for presentations as we currently conduct, but by doing something on the order suggested, we could garner attention in the polar / scientific community, stir up some interest in the APS and afford deserving recognition to the next generation of polar scientists. Since the Boulder meeting I have seen correspondence from members of the Board of Governors in which they expressed interest in reviving the APS Honors program. Either of these ideas could be easily put in motion and would add gravitas to our gatherings.

Obviously any such initative would require funding — something we ain't got a lot of — and the logical solution is to find either an angel or corporate sponsor and recognize that both would want to associate their name with such an event. Not a problem in my opinion.

The point is, we need to start thinking of doing things differently. We need to find sources of revenue over and above member dues. And we need to start considering how the APS can better serve the polar community in the years ahead.

Those of you who follow *The Polar Times* closely know that I haven't used the publication to express any personal views — okay, a snippy book review now and then — but I purposely leave the commentary to our Due North/Due South editors, and they do a fine job adding their considered and professional expertise to current polar events.

But the recent Boulder meeting lit my fire. John Behrendt, along with Wendy Roth, did a bang-up job putting the meeting together and they truly got sandbagged by this communications fault line that runs through our organization.

I would certainly welcome rebuttal, comments or criticism for this departure from editorial obscurity and, more importantly, any ideas of how we might do things differently in the near and coming future. All such responses will find a place in *The Polar Times* for others to consider.

Cliff Bekkedahl

***Managing Editor,* The Polar Times**

"Obituaries" continued from page 29

Zion Hospital. Fauno's interests included astronomy, model rocketry, and geography. She created and maintained an extensive, annotated bibliography of Antarctic fiction. This bibliography, known as Tekeli-li, is recognized worldwide as an authoritative source and has been cited by numerous published and online works. [Editor's Note: it is online at www.antarctic-circle.org/fauno.htm] Fauno was a member of the Century Club of San Francisco, Society of Women Geographers, Explorers Club, Sigma Xi, and Alpha Phi. Fauno is survived by her sister Virginia Stout and nephew Frederick Gregory Stout of Marin County.

Charles R. Stearns

Professor Charles R. Stearns died on 22 June 2010. He recently celebrated his 85th birthday. Dr. Stearns was a professor in the Department of Atmospheric and Oceanic Science and Senior Scientist at the Space Science and Engineering Center, both at the University of Wisconsin-Madison. His association with the University spanned 64 years. After serving in the United States Army (1943-1946), he was an undergraduate from 1946 to 1950, earning a Bachelor of Science in Physics. He earned a Master of Science degree in 1952, and a Doctorate of Philosophy in 1967, both in meteorology. He served on the faculty since 1965. Stearns taught more than 11 classes during his career and was involved in over 9 field projects. He was the principal investigator of the

Continued at right

2010: A Big Year for *The Polar Times*

Those of you with a historical bent will know that 2010 marks the 75th anniversary of the publication of *The Polar Times*. The first edition appeared in July 1935 and was sent to the members of the American Polar Society, which had been founded some nine months earlier in November 1934.

For more than a year now, our current staff of *The Polar Times* has been discussing the production of a commemorative 75th edition to celebrate this important anniversary. Our ideas and options cover a wide spectrum but the ever-leveling dimension is the cost of producing an extraordinary issue of *The Polar Times*.

Our treasurer Dave Baker and others on the Board of Governors have urged a program that seeks corporate support and funding for a special edition to be published late this year.

I can only say at this juncture that members should stay tuned—we will do our best within the funding constraints that prevail to bring you a special 75th edition of *The Polar Times* later this year.

Cliff Bekkedahl

***Managing Editor,* The Polar Times**

Membership Letter

Greetings! The American Polar Society Membership Center has been working diligently to make sure all addresses are up-to-date, memberships are paid up and our members have received the latest issues in a timely manner. We streamlined the renewal process with the one-year $25 APS membership rate which applies to most all categories of APS membership whether they be foreign, US or library. We do ask that foreign members pay with $25 US (cash or a check drawn upon a US bank). Foreign currency or checks from foreign banks must be processed (which means more bank fees, which the Society pays) and so are not accepted. Also, here at the membership center, we do not accept credit card payments. However, for those who are interested in paying with a credit card, please visit the online website Antarctic Connection (www.antarcticconnection.com).They accept credit cards and can set you up with an APS membership or renewal.

As usual, we will be sending out renewal notices sometime in October. Everyone can renew before that (which saves us postage costs) so please consider doing so if your membership is set to expire 12/31/2010. If you are unsure of your membership's expiration date, please contact us by email (aps@bluestreakme.com) or regular mail addresses: PO Box 300, Searsport, Maine 04974 USA.

Charles H. Lazerbom

Membership Chair
American Polar Society
PO Box 300 Searsport • Maine 04974 USA
aps@bluestreakme.com

"Obituaries" continued from left

Antarctic Automatic Weather Station (AWS) Program from 1980 to 2008. The AWS project was the first large-scale meteorological instrumentation of the continent. He deployed to Antarctica 17 times. He was advisor to 30 students during his career, and provided significant assistance to a half dozen other students in the US and abroad. Professor Stearns was a deeply respected colleague and a generous spirit who spent years exploring Antarctica's weather and climate as well as their impacts on the rest of the world. His work in the Antarctic was world-renowned. He will be sorely missed. ❑ *Matthew A. Lazzara, Meteorologist, Antarctic Meteorological Research Center at the University of Wisconsin-Madison*

Fred G. Alberts

Washington Post, 27 March 2010, by Patricia Sullivan—Fred G. Alberts, 88, a federal geographer who helped fill in blank spaces in the map of Antarctica, died March 3 at Suburban Hospital in Bethesda of an aortic aneurysm. He lived in Bethesda.

Mr. Alberts was principally responsible for the preparation and publication of two editions of "Geographic Names of Antarctica" and was internationally recognized as an expert in the topography and toponymy of the continent. His work formed the basis for the way places are named in Antarctica and for the development of a systematic approach for future names in Antarctica.

Two spots in Antarctica are named for him: Mount Alberts, named by the New Zealand Geographic Board in 1966, and Alberts Glacier, named by the United Kingdom Antarctic Place-names Committee in the 1980s. He visited Antarctica only once, in 1962, making it to the South Pole.

Fred George Alberts was born in Mount Pleasant, Pa., and grew up in Duluth, Minn. He served in the Army in North Africa and Italy during World War II. His decorations included the Purple Heart.

He graduated from the University of Minnesota-Duluth and received a master's degree in geography in 1949 from the University of Colorado at Boulder. He moved to Washington to join the U.S. Department of the Interior and later worked for the Defense Mapping Agency, now the National Geospatial-Intelligence Agency.

By the time he retired in 1980, he was the toponymic branch chief in the mapping agency's geographic names division. Since 1980, he had been an adviser to the Advisory Committee on Antarctic Names at the U.S. Geological Survey.

Mr. Alberts, an avid golfer, was a member of the Lakewood Country Club in Rockville. He was also a member of the Antarctican Society.

Survivors include his wife of 59 years, Marilyn I. Alberts of Bethesda; three children; a brother; a sister; six grandchildren; and one great-granddaughter. ❑

About Our Back Cover

The 17m-high masts of the SuperDARN radar, one of 17 in the Super Dual Auroral Radar Network set up in high latitudes to study ionospheric conditions. For the full story, see Walters' article on page 7. ❑
Photo by Tiara Walters

Major Contributors This Issue
Billy-Ace Baker • Abel Shafer • Peter Anderson •

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